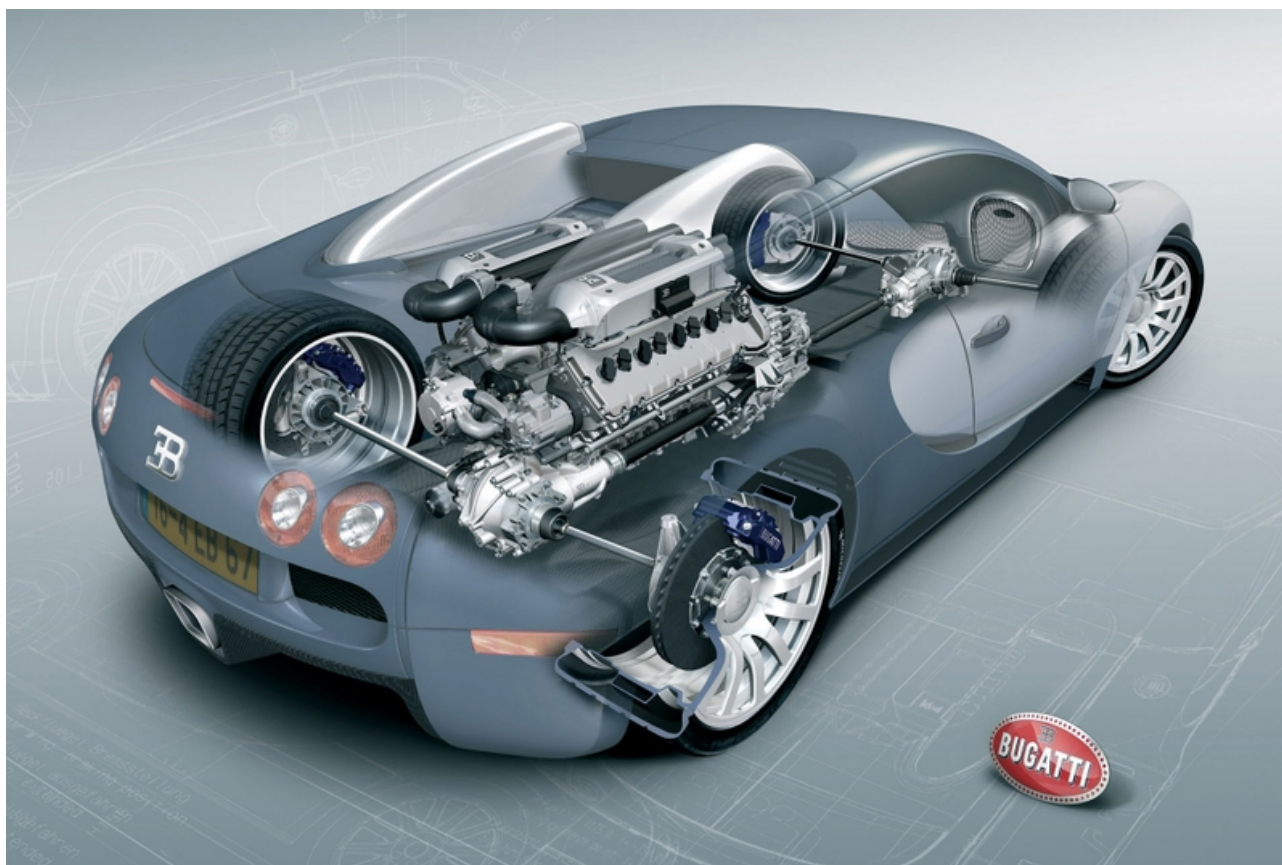


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VN-KERB TURBO SOLUTIONS LTD

A Round 1 Seed Enterprise Investment Scheme Funding



Bugatti Veyron with Compound Boosting

This memorandum is issued to individuals for their exclusive use who, in the belief of the directors of VN-KERB Turbo Solutions Limited, are Certified High Net Worth Individuals for the purposes of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2005, defined as a person with annual income of not less than £100,000 or who has capital assets, excluding their house and pension, of at least £250,000 and who has a signed certificate in the format set out in page 31 of this Memorandum.

EU aims to crack down on car industry

Brussels seeks powers to police groups after VW emission cheating scandal

JANUARY 27, 2016 by: **Jim Brunsden** in Brussels FT



EU regulators are seeking more powers to police the auto industry in a sign of how trust in the sector has collapsed after the Volkswagen emissions scandal.

The European Commission on Thursday proposed that it should have the authority to levy fines of as much as €30,000 per vehicle to manufacturers that flout emissions standards and other rules.

Brussels would also have the power to “suspend, restrict, or withdraw” licences given to car testing centres, or to fine them, if investigations show that they are failing to uphold EU laws.

The proposals are part of an overhaul of the EU’s car approval system that would also force makers to hand over data on vehicles’ software protocols to regulators, and empower the commission’s scientists to carry out random vehicle checks.

Elzbieta Bienkowska, the commission member responsible for auto industry regulation, said the plans would “raise the quality and independence of vehicle testing and improve the oversight of cars already in circulation”.

The proposals are the biggest step taken by Brussels to get on top of the VW scandal since the German company admitted in September that it had installed cheating software in millions of its cars in order to pass emissions tests for dangerous nitrogen oxides (NOx).

The crisis has been a big embarrassment for the EU, as it was US regulators, led by the Environmental Protection Agency, who uncovered the cheating even though about 8.5m of the estimated 11m affected cars were sold in Europe.

It has also sparked anger at the failure of national authorities and Brussels to tackle problems of cars passing official laboratory tests while emitting far higher levels of NOx on the road.

Ms Bienkowska believes the new powers would allow Brussels to play a more active role in upholding emissions standards, many of which are set at EU level.

The rules would require national car approval authorities to report to Brussels each year on the sanctions they have handed down for any breaches.

The commission's own fining powers would kick in if it was deemed that a member state had failed to uphold the law. Brussels would also have the right to order vehicle recalls and even wholesale withdrawals of a particular model.

In addition to giving itself a bigger role, the commission is also seeking to tackle what officials say are clear conflicts of interest in the present system. Vehicle testing laboratories are paid by carmakers, creating incentives for the test centres to go easy on manufacturers.

Thursday's plans would break up that model by requiring fee structures to be set by national authorities, which would also be responsible for processing the payments. Test centres would also be subject to tougher supervision, including audits by the commission and national officials, and on-site visits.

The measures require approval from EU states and the European parliament to become law. Commission officials acknowledge that the proposals would have stood no chance of winning enough support before the VW scandal, and whether they are adopted now will test of how far attitudes to the industry have changed after the revelations.

Volkswagen Could End Up Paying a Hefty Fine in Germany

By Reuters JULY 11, 2016, 9:29 AM EDT



Prosecutors promise no leniency.

German prosecutors will grant Volkswagen no mitigation for a record vehicle emissions settlement it faces in the United States and want VW to pay them a separate fine, a spokesman said.

Prosecutors in Braunschweig, near Volkswagen's (VW) Wolfsburg headquarters, are demanding VW be fined based on the level of the profits it made from selling about 11 million cars equipped with illicit engine software.

VW VLKAY -1.34% last month agreed with the U.S. government and regulators to pay \$15.3 billion to get about half a million emissions-cheating diesel cars off U.S. roads. But the scale of U.S. penalties is no reason to exercise leniency on VW's regulatory offense, a spokesman for the Braunschweig prosecutor's office said on Monday.

"We cannot pay heed to what VW may have to pay in other countries when we go about setting the fine," he said. "We cannot say: 'VW is already requested to pay a lot in the U.S., so let's not be so strict.' That's not possible."

Under Germany's law on regulatory offenses, prosecutors are assessing the "economic advantage" VW enjoyed from using cheating software, rather than expensive exhaust filter systems, to manipulate pollution tests, the spokesman said, adding it will be difficult to determine the level of profits VW has reaped from its wrongdoing.

Industry observers in Germany estimate this could result in a fine of several hundreds of millions of euros.

Braunschweig prosecutors, which last month started probing former VW Chief Executive Martin Winterkorn and VW brand chief Herbert Diess over suspicion of market manipulation, declined comment.

Europe's largest automaker confirmed on Monday it has been notified by prosecutors about the latest probe but declined further comment. The proposed U.S. settlement would move VW close to the 16.2 billion euros (\$18 billion) it has set aside to cover the costs of the scandal.

VW still faces criminal probes in the United States, Germany, and South Korea as well as lawsuits from investors around the world suing the carmaker for what they describe as losses incurred after the manipulations were disclosed in September.

EU plans new rules for emission tests following VW scandal

27 January 2016 From the section [BBC Business](#)



The European Union has proposed new rules to test car emissions following the scandal involving VW diesel vehicles. They want the tests to be carried out by independent assessors who are not connected to the motor manufacturers. The EU also wants to be able to recall any vehicles across the region and carry out spot checks on the road.

At the moment tests are carried out at a national level and are then valid across Europe. The new plan to test the level of nitrogen oxide being emitted from car exhausts will apply to all countries in the EU.

Laboratories that test cars would also no longer be paid directly by the manufacturers, in order to prevent conflicts of interest.

The Commission also wants the power to order recalls.

"To regain customers' trust in this important industry, we need to tighten the rules but also ensure they are effectively observed," said Jyrki Katainen, the European Commission's vice-president for jobs, growth, investment and competitiveness.

The EU does not, at the moment, have the powers to act against any single nation. It faced severe criticism following the VW emission scandal that it was too scared to take on Germany's power car industry.

Officials believe the Volkswagen scandal exposed serious weaknesses in the way new cars are tested and certified before being allowed onto the road.

The commission wants to give itself the power to order recalls at a European level, and to impose heavy fines on manufacturers which allow illegal vehicles onto the market.

It also wants to set up a system of spot checks, so that if a manufacturer were to succeed in cheating its way through a test, the deception would soon be discovered.

The new reforms could face stiff resistance from some countries opposed to seeing powers taken away from national authorities.

Member of Parliament for the Green Party, Bas Eickhout said: "It will be attacked heavily by the member states because it boils down to giving away sovereignty to Brussels."

But Monique Goyens, director general of the European Consumer Organisation, welcomed the new rules.

"Authorities across Europe failed to expose the use of Volkswagen's illegal defeat device and for years consumers have been unable to rely on carmakers' official fuel consumption figures.

"Without radical change to the approval system of passenger cars in Europe, the car emission-scandal is bound to happen again."

The proposals will take months, possibly years, for EU lawmakers and national governments to agree.

EPA - News Releases

Volkswagen to Spend Up to \$14.7 Billion to Settle Allegations of Cheating Emissions Tests and Deceiving Customers on 2.0 Liter Diesel Vehicles

Settlements Require VW to Spend up to \$10 Billion to Buyback, Terminate Leases, or Modify Affected 2.0 Liter Vehicles and Compensate Consumers, and Spend \$4.7 Billion to Mitigate Pollution and Make Investments that Support Zero-Emission Vehicle Technology

06/28/2016 Contact Information: Nick Conger (conger.nick@epa.gov) Julia Valentine (valentine.julia@epa.gov)

WASHINGTON – In two related settlements, one with the United States and the State of California, and one with the U.S. Federal Trade Commission (FTC), German automaker Volkswagen AG and related entities have agreed to spend up to \$14.7 billion to settle allegations of cheating emissions tests and deceiving customers. Volkswagen will offer consumers a buyback and lease termination for nearly 500,000 model year 2009-2015 2.0 litre diesel vehicles sold or leased in the U.S., and spend up to \$10.03 billion to compensate consumers under the program. In addition, the companies will spend \$4.7 billion to mitigate the pollution from these cars and invest in green vehicle technology.

The settlements partially resolve allegations by the Environmental Protection Agency (EPA), as well as the California Attorney General's Office and the California Air Resources Board (CARB) under the Clean Air Act, California Health and Safety Code, and California's Unfair Competition Laws, relating to the vehicles' use of "defeat devices" to cheat emissions tests. The settlements also resolve claims by the FTC that Volkswagen violated the FTC Act through the deceptive and unfair advertising and sale of its "clean diesel" vehicles. The settlements do not resolve pending claims for civil penalties or any claims concerning 3.0 liter diesel vehicles. Nor do they address any potential criminal liability.

The affected vehicles include 2009 through 2015 Volkswagen TDI diesel models of Jetta, Passat, Golf and Beetle as well as the TDI Audi A3.

"Today's settlement restores clean air protections that Volkswagen so blatantly violated," said EPA Administrator Gina McCarthy. "And it secures billions of dollars in investments to make our air and our auto industry even cleaner for generations of Americans to come. This agreement shows that EPA is committed to upholding standards to protect public health, enforce the law, and to find innovative ways to protect clean air."

“By duping the regulators, Volkswagen turned nearly half a million American drivers into unwitting accomplices in an unprecedented assault on our atmosphere,” said Deputy Attorney General Sally Q. Yates. “This partial settlement marks a significant first step towards holding Volkswagen accountable for what was a breach of its legal duties and a breach of the public’s trust. And while this announcement is an important step forward, let me be clear, it is by no means the last. We will continue to follow the facts wherever they go.”

“Today’s announcement shows the high cost of violating our consumer protection and environmental laws,” said FTC Chairwoman Edith Ramirez. “Just as importantly, consumers who were cheated by Volkswagen’s deceptive advertising campaign will be able to get full and fair compensation, not only for the lost or diminished value of their car but also for the other harms that VW caused them.”

According to the civil complaint against Volkswagen filed by the Justice Department on behalf of EPA on January 4, 2016, Volkswagen allegedly equipped its 2.0 litre diesel vehicles with illegal software that detects when the car is being tested for compliance with EPA or California emissions standards and turns on full emissions controls only during that testing process. During normal driving conditions, the software renders certain emission control systems inoperative, greatly increasing emissions. This is known as a “defeat device.” Use of the defeat device results in cars that meet emissions standards in the laboratory, but emit harmful NOx at levels up to 40 times EPA-compliant levels during normal on-road driving conditions. The Clean Air Act requires manufacturers to certify to EPA that vehicles will meet federal emission standards. Vehicles with defeat devices cannot be certified.

The FTC sued Volkswagen in March, charging that the company deceived consumers with the advertising campaign it used to promote its supposedly “clean diesel” VWs and Audis, which falsely claimed that the cars were low-emission, environmentally friendly, met emissions standards and would maintain a high resale value.

The settlements use the authorities of both the EPA and the FTC as part of a coordinated plan that gets the high-polluting VW diesels off the road, makes the environment whole, and compensates consumers.

The settlements require Volkswagen to offer owners of any affected vehicle the option to have the company buy back the car and to offer lessees a lease cancellation at no cost. Volkswagen may also propose an emissions modification plan to EPA and CARB, and if approved, may also offer owners and lessees the option of having their vehicles modified to substantially reduce emissions in lieu of a buyback. Under the U.S./California settlement, Volkswagen must achieve an overall recall rate of at least 85% of affected 2.0 litre vehicles under these programs or pay additional sums into the mitigation trust fund. The FTC order requires Volkswagen to compensate consumers who elect either of these options.

Volkswagen must set aside and could spend up to \$10.03 billion to pay consumers in connection with the buy back, lease termination, and emissions modification compensation program. The program has different potential options and provisions for affected Volkswagen diesel owners depending on their circumstances:

Buyback option: Volkswagen must offer to buy back any affected 2.0 litre vehicle at their retail value as of September 2015 -- just prior to the public disclosure of the emissions issue. Consumers who choose the buyback option will receive between \$12,500 and \$44,000, depending on their car's model, year, mileage, and trim of the car, as well as the region of the country where it was purchased. In addition, because a straight buyback will not fully compensate consumers who owe more than their car is worth due to rapid depreciation, the FTC order provides these consumers with an option to have their loans forgiven by Volkswagen. Consumers who have third party loans have the option of having Volkswagen pay off those loans, up to 130 percent of the amount a consumer would be entitled to under the buyback (e.g., if the consumer is entitled to a \$20,000 buyback, VW would pay off his/her loans up to a cap of \$26,000).

EPA-approved modification to vehicle emissions system: The settlements also allow Volkswagen to apply to EPA and CARB for approval of an emissions modification on the affected vehicles, and, if approved, to offer consumers the option of keeping their cars and having them modified to comply with emissions standards. Under this option in accordance with the FTC order, consumers would also receive money from Volkswagen to redress the harm caused by VW's deceptive advertising.

Consumers who leased the affected cars will have the option of terminating their leases (with no termination fee) or having their vehicles modified if a modification becomes available. In either case, under the FTC order, these consumers also will receive additional compensation from Volkswagen for the harm caused by VW's deceptive advertising. Consumers who sold their TDI vehicles after the VW defeat device issue became public may be eligible for partial compensation, which will be split between them and the consumers who purchased the cars from them as set forth in the FTC order.

Eligible consumers will receive notice from VW after the orders are entered by the court this fall. Consumers will be able to see if they are eligible for compensation and if so, what options are available to them, at VWCourtSettlement.com and AudiCourtSettlement.com. They will also be able to use these websites to make claims, sign up for appointments at their local Volkswagen or Audi dealers and receive updates. Consumer payments will not be available until the settlements take effect if and when approved by the court, which may be as early as October 2016.

Emissions Reduction Program: The settlement of the company's Clean Air Act violations also requires Volkswagen to pay \$2.7 billion to fund projects across the country that will reduce emissions of NOx where the 2.0 litre vehicles were, are or will be operated. Volkswagen will place the funds into a mitigation trust over three years, which will be administered by an independent trustee. Beneficiaries, which may include states, Puerto Rico, the District of Columbia, and Indian tribes, may obtain funds for designated NOx reduction projects upon application to the Trustee. Funding for the designated projects is expected to fully mitigate the NOx these 2.0 litre vehicles have and will emit in excess of EPA and California standards.

The emissions reduction program will help reduce NOx pollution that contributes to the formation of harmful smog and soot, exposure to which is linked to a number of respiratory-

and cardiovascular-related health effects as well as premature death. Children, older adults, people who are active outdoors (including outdoor workers), and people with heart or lung disease are particularly at risk for health effects related to smog or soot exposure. NO₂ formed by NO_x emissions can aggravate respiratory diseases, particularly asthma, and may also contribute to asthma development in children.

Zero Emissions Technology Investments: The Clean Air Act settlement also requires VW to invest \$2 billion toward improving infrastructure, access and education to support and advance zero emission vehicles. The investments will be made over 10 years, with \$1.2 billion directed toward a national EPA-approved investment plan and \$800 million directed toward a California-specific investment plan that will be approved by CARB. As part of developing the national plan, Volkswagen will solicit and consider input from interested states, cities, Indian tribes and federal agencies. This investment is intended to address the adverse environmental impacts from consumers' purchases of the 2.0 litre vehicles, which the governments contend were purchased under the mistaken belief that they were lower emitting vehicles.

FTC's Injunctive Relief: The FTC settlement includes injunctive provisions to protect consumers from deceptive claims in the future. These provisions prohibit Volkswagen from making any misrepresentations that would deceive consumers about the environmental benefits or value of its vehicles or services, and the order specifically bans VW from employing any device that could be used to cheat on emissions tests.

The provisions of the U.S./California settlement are contained in a proposed consent decree filed today in the U.S. District Court for the Northern District of California, as part of the ongoing multi-district litigation, and will be subject to public comment period of 30 days, which will be announced in the Federal Register in the coming days. The provisions of the FTC settlement are contained in a proposed Stipulated Final Federal Court Order filed today in the same court.

To view the consent decree, visit: www.justice.gov/enrd/consent-decrees

For more information, visit: <https://www.epa.gov/enforcement/volkswagen-clean-air-act-partial-settlement>



Hyundai and Kia fined \$100m for misleading customers on fuel economy

Car-makers must also forfeit \$200m worth of carbon credits after understating lifetime CO2 emissions on some of its models by about 4.75m metric tons



The Hyundai Accent, one of the models that the car-maker advertised as having lower emissions than was true. Photograph: Mary Altaffer/AP

Hyundai and Kia have agreed to pay \$100m (£62m) in fines and forfeit \$200m in credits for misleading customers about the fuel economy of more than a million cars sold in the US. Monday's fine for the South Korean car-makers is the largest in the 50-year history of the Clean Air Act, and could set a precedent for Ford and other car companies audited for similar practices.

Hyundai and Kia agreed to the fines after the Environmental Protection Agency (EPA) and the Justice Department found the car-makers had misled consumers about fuel economy and greenhouse gas emissions on several models, including the popular Accent and Elantra. After fuel prices spiked in 2008, Hyundai gained a marketing edge by claiming that its cars

got 40 miles per gallon in highway driving. The inflated fuel economy claims involved about 1.2m vehicles, about a quarter of the 2011-2013 models sold in the US, the EPA found. “Hyundai and Kia gave consumers inaccurate information about the real-world fuel economy performance of many of these vehicles,” the EPA said in a statement on Monday.

The agency said the car-makers chose the most favourable results, rather than the average, when processing test data, inflating fuel economy by one to six miles per gallon. They understated greenhouse gas emissions of their fleets by about 4.75m metric tons over the estimated lifetime of the vehicles.

The company claimed at the time that engineers running the tests had made mistakes. They lowered the claims, and offered compensation to car owners for the extra fuel costs. Under the agreement, the EPA said the companies accepted an audit of the 2015 and 2016 models, and to overhaul test protocols before its 2017 models come to market. The companies will also give up 4.75m carbon credits. Those credits had allowed Kia and Hyundai to go on selling the big gas-guzzling models that remain popular with American consumers. The EPA said they were worth more than \$200m.



The EPA's Gina McCarthy and US attorney general Eric Holder announce the fine for the car-makers.
Photograph: Evan Vucci/AP

David Zuchowski, Hyundai's chief executive in the US, said in a statement: “Hyundai has acted transparently, reimbursed affected customers and fully cooperated with the EPA throughout the course of its investigation.

“We are happy to put this behind us.”

Since the 2012 audit of Hyundai, the EPA has taken a closer look at other car company claims. Ford, Mercedes-Benz and other companies have reduced mileage claims for some models after EPA audits.

“Businesses that play by the rules shouldn’t have to compete with those breaking the law,” the EPA administrator, Gina McCarthy, said on Monday. “This settlement upholds the integrity of the nation’s fuel economy and greenhouse gas programs and supports all Americans who want to save fuel costs and reduce their environmental impact.”

In June, Ford admitted to overstating mileage claims and agreed to compensate owners for extra fuel costs. The company said the initial mileage claims were a mistake.

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A "Sophisticated investor" is one who has a current certificate signed by an authorised person to the effect that he or she is sufficiently knowledgeable to understand the risks associated with the type of investment described by the Information Memorandum and who has signed, within the period of twelve months ending on the date of this document, a statement that he or she is qualified as a Sophisticated Investor in relation to such investments and accepts that he or she may receive financial promotions which have not been approved for the purposes of section 21 of the FSMA.

A "Self-certified sophisticated investor" is one who has signed, within the period of twelve months ending on the date of this document, a statement that he or she understands that he or she may receive financial promotions which have not been approved for the purposes of section 21 of the FSMA and that he or she (i) is a member of a network or syndicate of business angels and has been so for at least the six months preceding the date that such statement is made; or (ii) has made more than one investment in an unlisted company in the two years preceding such date; or (iii) is working, or has worked in the two years preceding such date, in a professional capacity in the private equity sector, or in the provision of finance for small and medium enterprises; or (iv) is currently, or has been in the two years preceding such date, a director of a company with an annual turnover of at least £1 million.

The attention of prospective investors is drawn to the contents of page 29 of this document entitled "Risk Factors".

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The Company or any other person shall construe nothing in this document as the giving of investment advice. If you are in any doubt as to whether to invest in the securities described herein, you should consult an independent financial adviser who is qualified to advise on investments of this nature. The Revenue Projections, shown in Schedule 1 in this Memorandum are purely illustrative and constitute a forecast of the possible market opportunity only.

Investors are encouraged to seek independent legal and tax advice prior to submitting an application to invest in the company and to conduct their own due diligence into the terms of this offer and the investment opportunity.

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Principal Definitions

In this Memorandum, where the context so admits:

Advanced Assurance	Authority from HMRC to issue certificates under Section 204(1) ITA 2007
APC	Advanced Propulsion Centre
Board	The board of Directors of the Company
Business Plan	The document describing the total project delivery and anticipated returns
Closing Date	The date the offer of subscription will be closed
Consultancy Revenues	Income received from design and outsourced manufacturing
Directors	The Directors of the Company from time to time
EIS	Enterprise Investment Scheme
Fordfleet	Fordfleet Design Ltd
Full Subscription	The total subscription required from all Subscribers
HMRC	Her Majesty's Revenue and Customs
Initial Subscription Price	The amount payable by the Initial Subscribers
IP	Intellectual Property
KERB	Kinetic Energy Recovery Boosting
Licence Revenues	Receipts from manufacturers and operators using specific VN-KERB Turbo Solutions
Minimum Subscription	The minimum individual investment as decided by the Company
NFS	New Founder Shareholders
OEM	Original Equipment Manufacturer
OICA	Organisation Internationale des Constructeurs d'Automobiles
IOMVM	International Organization of Motor Vehicle Manufacturers
O&M	Operation and Maintenance
PWF	Page White & Farrer Patent Attorneys
Share Premium	The difference between the issued ordinary share price £0.01 and the subscribed price
Second-Round Funding	450 shares issued pursuant to successful completion of the second subscription
SEIS	Seed Enterprise Investment Scheme
SG LLP	The accounting firm of - Simmons Gainsford LLP
Shares	Ordinary shares of 1p each in the Company
Subscribers	Those persons who subscribe for the Shares in the company
TRL	Technology Readiness Levels
UKTI	United Kingdom Trade and Investment
VN-CP	Viridis Navitas Capital Partners Ltd - Sponsor of KERBS Technology
VN-KERB-TS	VN-KERB Turbo Solutions Ltd

Project Introduction

Background to the EU CO₂ Emission Standards for Passenger Cars And Light-Commercial Vehicles Regulation (EC) 443/2009

The law requires that the new cars registered in the EU do not emit more than an average of 130 grams of CO₂ per kilometre (g CO₂/km) by 2015. This means a fuel consumption of around 5.6 litres per 100 km (l/100 km) of petrol or 4.9 l/100 km of diesel.

The average emissions of a new car sold in 2014 was claimed to be 123.4g CO₂/km, well below the 2015 target. However, in 2014 and 2015 it started to become clear that the car industry was not actually beating the targets, or even meeting them. Rather it was either misinforming the car buying public, or in the case of Volkswagen, actually CHEATING!

In November 2014, the US Environmental Protection Agency, EPA fined Hyundai and Kia \$100 million for emissions violations on 1m cars imported into the US that emitted more Green House Gases, GHGs than the levels claimed by the manufacturers. They were also stripped of \$200 million worth of GHG emissions certificates.

A further \$50 million was levied for audit and testing costs on ensuring future vehicles sold in the US reach the manufacturers claimed, and legislated emissions levels. No fines have been levied yet by Europe or rest of the world for these transgressions.

On 28th June 2016, the US EPA and the Federal Trade Commission, FTC fined Volkswagen \$14.7 billion in order to settle allegations of cheating emissions tests and deceiving customers. The affected vehicles include 2009 through 2015 Volkswagen TDI diesel models of Jetta, Passat, Golf and Beetle as well as the TDI Audi A3. No fines have been levied yet by Europe or the rest of the world for these transgressions.

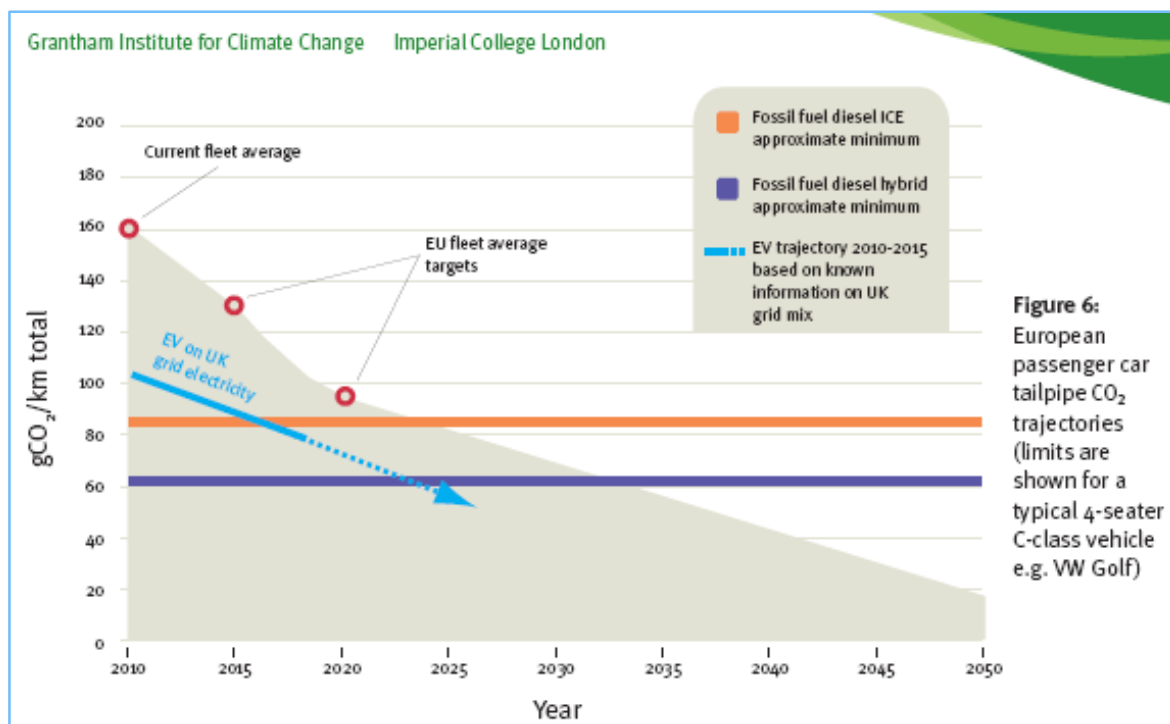
The automotive Industry was given plenty of warning on the introduction of emissions legislation on vehicles as the article below demonstrates, but this appears to have little effect, and now Europe is threatening fines of up to €30,000 per car for vehicles not meeting emissions standards. Below are links to articles articulating the warnings that were given and when.

<https://www.theguardian.com/sustainable-business/2015/sep/24/vw-volkswagen-were-warned-about-risk-of-1bn-emission-fines>

<https://www.ft.com/content/b4215678-c4e6-11e5-b3b1-7b2481276e45>

By 2021, phased in from 2020, the fleet average to be achieved by all new cars is **95 grams** of CO₂ per kilometre. This means a fuel consumption of around 4.1 l/100 km of petrol or 3.6 l/100 km of diesel.

The 2015 and 2021 targets represent reductions of 18% and 40% respectively compared with the 2007 fleet average of 158.7g/km.



The graph above shows the effect of legislation on conventional & hybrid ICE powered passenger vehicles cars in future. The Golf Diesel will be unable to meet emission standards in 2025 and the Diesel Hybrid exceeds allowances by 2032.

In Summary, the Global Internal Combustion Engine, Automotive and Static Plant industries need a 'new' engine efficiency solution that can integrate with existing ICE technology, meet legislation relating to the 2020 reductions in CO₂ emissions and beyond, or they will cease to exist in their current form, so what next?

Industry Strategy

Engine right-sizing is a key trend in the automotive industry, both in the Light and Heavy duty sectors, this will see the majority of road cars fitted with new engine solutions in Europe and other key regions by 2020.

What is engine right-sizing?

This is the transition from existing vehicle designs to cars that are smaller, more efficient, and with more space, but ideally with no less performance. Since the industry is under increasing pressure to deliver on hitting the targets for emissions legislation, as demonstrated in the previous section, this is now one of the key trends in the automotive industry, and boosted engines are part of the solution.

However, maintaining acceptable engine performance requires compound boosting which is highly expensive, or Variable Geometry Turbocharging (VGT) which is also expensive, and only suited to turbo-diesel engines. Unfortunately, in this application it also creates excessive exhaust back pressures which automatically incurs a fuel consumption penalty.

Using twin turbos is an alternative but expensive and more complex solution. This cannot always provide the required engine performance whilst still creating excessive exhaust back-pressure. Supercharged/turbocharged solutions avoid elevated backpressure but lead to a significant real world fuel consumption penalty as the supercharger is mechanically driven by the engine for example the VW "TwinCharger" and here even the manufacturer is unhappy at the application costs involved.

(see <https://www.carthrottle.com/post/volkswagens-superb-twincharger-engine-meets-its-maker>)

Of the many E-boosting systems proposed for light duty applications, many require 42 Volt architecture creating further expense and complexity for the manufacturer and eventually for the customer.

Heavy duty applications all involve turbo compounding and/or Variable Geometry Turbo (VGT) systems, which result in elevated exhaust back pressures and thus incur fuel consumption penalties.

The VN KERB Turbo Solution (VN-KERB-TS)

The VN-KERB-TS uses existing technologies to recover vehicle braking energy, and then utilises this energy to spin-up the turbocharger ready for the next acceleration event, thereby eliminating turbocharger lag in a clean and efficient way.

This delivers high performance or enables further engine down-sizing to improve fuel economy and reduce vehicle emissions.

Compared to modern turbo diesels, this solution offers the performance equivalent to a modern turbo diesel, without the turbo lag, increasing the engines efficiency and potentially reducing the number of turbochargers and complexity, (and therefore the cost) of today's mass market diesel turbos. Furthermore, it is also a solution for petrol engine turbos.

Compared to modern downsized turbocharged gasoline engines, the system offers improved in-vehicle acceleration without the need for complex compound boosting systems involving two or more boosting solutions, e.g. supercharger or turbocharger.

The system is highly compatible with hydraulic hybrid vehicle platforms being proposed as alternatives to the electric hybrid, as the bulk of the additional components already exist. Hydraulic hybrids are only attractive for medium to heavy duty (as the hydraulic components are heavy) but can recover a much higher proportion of vehicle braking energy (up to 70% c.f. 30% in an electric hybrid).

Key Information Summary

Following 2 years of R&D by Professor Alasdair Cairns, the project is focused on delivering an automotive-ready solution, in line with the industry established Automotive Technology Readiness Levels, (Complete guide in Schedule 4). This aligns R&D project deliverables to industry accepted parameters for technology acceptance into manufacturing. In particular, it lays out the required level the technology must achieve and the parameters it must deliver on prior to industry adoption, and therefore commercialisation. Should the solution deliver on all of its targets, this process facilitates a straightforward and industry accepted route for integration into manufacturing, and therefore monetisation of the technology.

The Company proposes to raise an initial £150,000 via a single SEIS raise by issuing 150 Ordinary Shares at £1000 per share. This will fund Phase 1 Rig testing to Technology Readiness Level 4 (TRL4) at a budgeted cost of £125k and cover the period April 2017- April 2019. **This is a 'Go – No Go' break point.** If the trial is successful it will deliver sufficient results to move the project onto Phase 2 and a further EIS round of funding by the end of 2018.

HMRC Advanced Assurance for Seed Enterprise Investment Scheme (SEIS) has been confirmed. (See page 33)

Phase 2 on-engine demonstration will deliver the technology solution integrated into an engine, energy recovery system and turbo to demonstrate the solutions effectiveness, efficiency and emissions on a transient rig, which means as close to road-going conditions as can be achieved in a test facility. This will take 2 years and the solution will target Technology Readiness Level 6, TRL6 and is budgeted at £900K.

Once TRL 6 is reached there are two options, namely:

1. Obtain Advanced Propulsion Centre (APC) funding to take the technology to full production, with OEM and suppliers onboard with a £10-20m total project cost including partners, and a 2-3 year project duration. If the Directors take this option the actual cost to VN KERB-TS will be significantly less, as much of the work will be performed and paid for by consortium participants
2. Commercialise the technology at TRL6 / 7 stage i.e. A trade sale.

Examples of similar technology trade sales, at this stage of development, TRL6/7 can be found here:

Tier 1 Manufacturer 'Valeo' purchased CPT VTES

(See <http://www.valeo.com/medias/upload/2012/10/2632/valeo-acquires-electric-supercharger-technology.pdf>)

UK consultancy Integral Powertrain Ltd formed a joint venture with Tier 1 manufacturer 'Magna' on SuperGen (See <http://www.integralp.com/technologies/supergen>)

A 'rights of use' & 'development of' Licence (deriving from the UK Patent Application numbers:

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GB 1620316.8 & GB 1620314.3 utilising the Kinetic Energy Recovery Boosting Solution in a Turbo application within the Global Automotive Industry, has been negotiated with the beneficial owner of the IP, Viridis Navitas AC-IP Ltd (VN-AC-IP) This will allow VN KERB Turbo Solutions Ltd (VN-KERB-TS) to complete a technology application development programme.

The programme will be conducted in conjunction with industry partners, third party OEM technical suppliers and led by Professor Alasdair Cairns. All additional IP created by this development will be owned jointly by VN-KERB-TS and VN-AC IP for their mutual benefit, on a royalty free basis. All stages of the programme will be developed with clear 'Go' – 'No Go' break points.

Stage 1 On Offer: Round 1 New Founder Shareholder ("NFSH") offer is for £150,000 via the issue of 150 shares @ £1000 per share, delivering Phase 1 Rig testing to Testing Readiness Level 4 (TRL4) at a budgeted cost of £126k and covers the period April 2017-April 2019.

Stage 2 initiated upon successful completion of Stage 1: Financed by a 2nd Round EIS raise of £900,000 via the issue of 450 further shares @ £2,000 per share, to deliver on-engine demonstration with TRL6 achieved two years after initiation.

Once Stage 2 is in progress, the VN-KERB-TS Sales & Marketing team will commence communication with Global Automotive industry players to demonstrate and promote the solution, whilst also communicating with the necessary regulatory bodies to ensure compliance issues are covered.

It is the industry accepted norm that after this stage an established automotive OEM will either licence the technology for distribution through their existing channels or buy the technology outright, as indicated in the description of a similar trade sale on the previous page.

Commercialisation, Timings and Costs

Stage 1 of the programme will be completed within 24 months of fundraise closing. Costs are estimated at £126,000 including a 10% payment (£25,000, being 10% of the full cost of £250,000) of the negotiated development licence fee. *Note: All Legal, Accountancy and 3rd Party costs as indicated on Page 22 of this IM and (estimated at £24,000) will be made before project commencement. Project expenditure at £126,000 including a 10% overrun / contingency fee.*

Stage 2 will take place over a 24-month period from funding close and costs are estimated at £810,000 including a minimum second payment (£50,000 being 20% of the full cost of £250,000) of the negotiated development licence fee. *Note: All Legal, Accountancy and 3rd Party costs (estimated at £90,000) will be made before project commencement. Project expenditure estimates include a 10% overrun / contingency fee.*

A Business Development Plan describing the science and technology background, the market drivers, size and target sectors, competition, key objectives and high-level deliverables, organisation and structure, commercialisation, timings and costs, business model, market development, risks and risk mitigation and partner relationships has been developed and can be found in the executive summary. All other relevant supporting documents are included in the Schedules.

The successful development of VN-KERB-TS technology in this multi-billion £pa market has the potential to generate profits at VN-KERB-TS worth millions of £s every year. In turn, this has the potential to produce returns for subscribers in VN-KERB-TS worth significant multiples of their original investment.

Directors, Professional Advisers and Company Information

Directors:

Alasdair Cairns (Technical & Automotive)

Mark Gilmore (Sales & Operations)

David Newman (Commercial and Managing)

Secretary and Treasurer:

Steven Strauss FCA

Solicitors:

Howard Kennedy,
19 Cavendish Square,
London W1A 2AW

Auditors:

Sopher & Co
38 Berkeley Square
London W1J 5AE

Registrars:

Simmons Gainsford LLP
7-10 Chandos Street,
London W1G 9DQ

Registered Office:

4th Floor, 7-10 Chandos Street,
London W1G 9DQ

Directors

Alasdair Cairns is Professor of Automotive Propulsion at Nottingham University, with a background in low carbon powertrain research and development within both academia and industry. He is the designer and initiator of the VN-KERB-TS technology and has the role of Technical Director within the company.

Career History:

2016 -	Professor of Automotive Propulsion, Nottingham University
2016 - 2016	Deputy Head of Department Brunel University
2014 - 2016	Director of Teaching and Learning
2013 - 2016	Professor, Brunel University London
2010 - 2013	Senior Lecturer, Brunel University London
2006 - 2009	Principal Research & Development Engineer, Mahle Powertrain Ltd.
2003 - 2006	Senior Research & Development Engineer, Cosworth Technology Ltd.
2000 - 2002	Development Engineer, Cosworth Technology Ltd.

Research area(s)

- Spark Ignition Engine Combustion
- Advanced Exhaust Gas Recirculation Systems
- Alternative Fuels (including biofuels)
- Advanced Turbocharging Systems
- Diesel Engine Combustion
- Optical Engine Diagnostics
- CAI / HCCI Engine Combustion
- Hybrid Vehicle Propulsion (including mechanical and hydraulic systems)

Research & Research interests

Low carbon automotive powertrain technologies, with prior and on-going projects in the following research areas:

- Spark Ignition Engine Combustion
- Advanced Exhaust Gas Recirculation Systems
- Alternative Fuels (including biofuels)
- Advanced Turbocharging Systems
- Diesel Engine Combustion
- Optical Engine Diagnostics
- CAI / HCCI Engine Combustion
- Hybrid Vehicle Propulsion (including mechanical and hydraulic systems)

Research project(s) and grant(s)

- 2015-2018: Ultra Efficient Engines & Fuels. EPSRC funded project with JLR, BP, Delphi & Ricardo. Cl. £2.9m
- 2015-2017: Innovative Low Carbon Power Generation Technology. Innovate UK (EPSRC) funded project with 2020 Powergen, Integral Powertrain Ltd & Lontra. Pl. £230k
- 2015-2016: Pre-Mixed Micropilot Combustion in Future Heavy Duty Dual Fuel Engines. KTP follow-on project with Clean Air Power Ltd. Pl. £86k
- 2012-2015: Advanced HD Dual Fuel Operation. KTP project with Clean Air Power Ltd. Pl. £180k
- 2012-2013: Novel Hydraulically-Assisted Boosting System for Future Military Land Vehicles. CDE funded project with GE Precision Engineering Ltd. Pl. £50k.
- 2010-2014: Lubricant Induced Pre-Ignition in Future Downsized Spark Ignition Engines. Direct funded PhD studentship with BP. Pl.
- 2010-2015: Particulate Emissions Reduction in Future Advanced SI Engines Operating with Gasoline/Ethanol Blends. Direct funded PhD with MAHLE Powertrain LLC. Pl.
- 2011-2012: The Effects of Multiple Spark Discharges and Future Fuels during Hybrid SI-CAI Combustion. EPSRC funded project with BP. Pl. £99k.

Mark Gilmore is a founding Director of Viridis Navitas Capital Partners Ltd (*the sponsor of the KERB Turbo technology*) and a serial entrepreneur who has successfully managed to blend a career of high level professional corporate roles, and an enviable track-record in start-ups. Mark brings more than 20 years successful operating experience at senior and executive level sales and operational management to VN KERB-TS.

Mark's most recent corporate role was managing COLT Managed Services strategic markets region (6 countries and 27 employees). In his last year he delivered over £30m in revenues (118% against target) and nearly £13m of new business bookings (122% against target). This achievement was coupled with the process of transitioning the pre-sales technical architects, with corporate incentive structures to technical consultants holding personal incentive schemes.

Prior to this Mark held a number of senior Business Development roles including; Dimension Data for over 4 years, significantly exceeding revenue, bookings and margin targets in each of the 4 years he was there; GTS Carrier Services; and TGNS S.A. In between these roles, Mark started Big Picture Interactive, a brand new digital multimedia and interactive web company and took the company from start-up to over £1m turnover in the first year, and prior to that converted an antique shop into a pub and restaurant and ran it for 2 years before exiting.

David Newman is also a founding Director of Viridis Navitas Capital Partners Ltd (*the sponsor of the KERB Turbo technology*) and another highly commercial, innovative and success driven individual. He is also an entrepreneur with a strong electronic, electro-mechanical, automotive and heavy engineering background.

Following 10 years of military service operating throughout the world, David spent the next 10 learning the commercial realities of international business by apprenticing himself to the most successful business owners and companies he could find. During this time, he was tasked across a broad range of industries including, leisure, entertainment, automotive, telecoms, advertising and IT.

His corporate roles have included: Project Management, New Business Procurement, Financial Restructuring, Technical Creation and Support, IT Solution Creation & Delivery, Training Program Creation & Delivery and Change Management.

In 1999 he formed his own Telecoms consultancy and later that year created Trans Global Network Services, the world's first global fibre optic leasing operator.

After successfully exiting TGNS in 2002 with annual revenues of \$27m, David accepted the role of Commercial advisor to the then Maltese Minister of Finance, The Right Hon Mr John Dalli.

There he formed part of a 3-man team charged with redesigning the Countries FDI programme, agencies and Industrial Estate Management.

Successful completion of this project delivered a 'step change' in Government attitude toward FDI procurement, Business Promotion and even its own work force, pre the Country's accession to Europe.

In 2004 David continued his career by taking on international consultancy roles within the restructuring IT and telecoms sector and later within the emerging renewable energy industry.

He returned to the commercial 'start-up' market place in 2008, designing and building an "outsourced" Debt Management and Cash Collection business for top 50 London accountancy practice, Simmons Gainsford LLP. SG Debt Management was initially created to assist SG client's post-recession but today has exceeded that brief. The business currently manages annual cash collections in excess of £16m and continues to quietly attract new clients by user recommendation only.

In mid-2009, David was invited to lead the design team in building an 'algae to fuel' Photo Bio Reactor for a US project. In mid-2010 working with the same US affiliates, he went on to manage the design and build of an innovative 'oleophilic membrane' crude oil recovery rig. With support from the US Department of Energy, the machine was deployed in the Gulf of Mexico and trialled as part of the Deep Water Horizon clean-up operation.

In September 2010 David joined forces with Mark and formed Viridis Navitas Capital Partners Ltd (VN-CP) specifically to target the renewable energy start-up funding gap experienced by inventors, engineers and scientists alike.

The above-mentioned experiences have allowed David to build up a broad network of contacts throughout Governments and industries alike that he leverages to the benefit any company he works with. Understanding the financial risk versus reward balance for investors, as a 'real' investor himself, he brings an unusual but extremely useful skill set to the company.

VN Capital Partners has since inception, delivered 7 successful funding rounds for platform technology application spinouts raising in excess of £2M via HMRC Advanced Assured Seed Enterprise Investment Schemes & Enterprise Investment Schemes. ***Investors in VN Advanced Assured SEIS and EIS projects have seen very significant increases in share value, with increases of between 500% and 2400% in some projects so far.***

Co Secretary

Steven Strauss is a Chartered Accountant and Fellow of the Institute of Chartered Accountants in England and Wales. Steven read Economics at the London School of Economics, gaining a BSc Honours Degree in 1981, studied for his articles and qualified in 1985 receiving an associate membership of the Institute of Chartered Accountants in England and Wales later in that year.

In addition to work in the tax field, Steven has also had a significant amount of commercial experience, advising and consulting corporate entities on a wide range of matters.

Steven has been a Director of an Australian Stock Exchange Quoted company and is currently Chairman of an International payments solution company and Financial Director of VN-CP.

Engineering Design Consultants:

Fordfleet Design Ltd

Engineering Manufacturers

Allenfield Precision Engineering Ltd

Executive Summary

Company Objectives

This Information Memorandum has been published to enable the Company to raise £150,000 in a single round of funding. The initial funding is offered on terms that enable subscribers to benefit from the SEIS regime, whilst subsequent rounds will offer EIS relief (subject to no changes in the relevant statute).

The first round will raise £150,000 from New Founder Shareholders through the issue of 150 ordinary shares of 1p each in the capital of the Company at a premium of £999.99 per Share, which upon full subscription will represent 13.04% of the share capital in the Company.

Upon successfully meeting the Stage 1 project development milestones the Company will seek to raise an additional £900,000 via a 2nd funding round. Issuing a further 450 ordinary shares of 1p each at a premium of £1,999.99 per share as new subscription capital. This will upon full subscription post Round 2 represent 28.12% of the total share capital in the Company.

Upon the successful closing of Round 2 funding the shareholdings will be:

Founding shareholders:	62.5%
1 st Round subscribers:	9.38%
2 nd Round subscribers:	28.12%

The objective of the company is to develop the KERB technology for use in the Automotive Turbo marketplace by delivering designs for mass-manufactured units with demonstrated capabilities & performance certified by an industry recognised third party. Subsequently the company intends to exploit the technology by:

1. Commercialising the technology at TRL6/7 stage, e.g. a trade sale
2. Obtain Advanced Propulsion Centre (APC) funding to take the technology to production, with OEM and suppliers onboard with a £10-20m total project cost including partners, and a 2-3 year duration. If the Directors take this option the actual cost to VN KERB-TS will be significantly less as much of the work will be performed and paid for by consortium participants.

Note* Alasdair Cairns is highly experienced in grant application work and has a commendable track record of successes in this sector. See page 8 for details.

New Vehicle Market Size

2015 OICA Vehicle Production Statistics

Country	Cars	Commercial Vehicles	Total	% Change
Argentina	308,756	224,927	533,683	-13.50%
Australia	159,872	13,137	173,009	-4.00%
Austria	109,000	16,500	125,500	-17.40%
Belgium	369,172	40,168	409,340	-20.80%
Brazil	2,018,954	410,509	2,429,463	-22.80%
Canada	888,565	1,394,909	2,283,474	-4.60%
China	21,079,427	3,423,899	24,503,326	3.30%
Czech Rep.	1,298,236	5,367	1,303,603	4.20%
Egypt	12,000	24,000	36,000	-15.30%
Finland	69,000	53	69,053	53.30%
France	1,553,800	416,200	1,970,000	8.20%
Germany	5,707,938	325,226	6,033,164	2.10%
Hungary	491,720	3,650	495,370	13.20%
India	3,378,063	747,681	4,125,744	7.30%
Indonesia	824,445	274,335	1,098,780	-15.40%
Iran	884,866	97,471	982,337	-9.90%
Italy	663,139	351,084	1,014,223	45.30%
Japan	7,830,722	1,447,516	9,278,238	-5.10%
Malaysia	558,324	56,347	614,671	3.30%
Mexico	1,968,054	1,597,415	3,565,469	5.90%
Netherlands	41,870	2,252	44,122	40.40%
Poland	534,700	125,903	660,603	11.30%
Portugal	115,468	41,158	156,626	-3.00%
Romania	387,171	6	387,177	-1.10%
Russia	1,214,849	169,550	1,384,399	-26.60%
Serbia	82,400	1,230	83,630	-18.90%
Slovakia	1,000,001	0	1,000,001	3.00%
Slovenia	133,092	0	133,092	12.20%
South Africa	341,025	274,633	615,658	8.80%
South Korea	4,135,108	420,849	4,555,957	0.70%
Spain	2,218,980	514,221	2,733,201	13.70%
Sweden	188,987	N.A.	188,987	22.60%
Taiwan	298,418	52,667	351,085	-7.40%
Thailand	772,250	1,143,170	1,915,420	1.90%
Turkey	791,027	567,769	1,358,796	16.10%
Ukraine	5,654	2,590	8,244	-71.30%
UK	1,587,677	94,479	1,682,156	5.20%
USA	4,163,679	7,936,416	12,100,095	3.80%
Uzbekistan	185,400	0	185,400	-24.50%
Others	693,817	138,866	832,683	19.10%
Total	68,539,516	22,241,067	90,780,583	1.10%

(Source <http://www.oica.net/category/production-statistics>)

Annual growth within the Global Automotive manufacturing industry over the long term is projected to be approximately 2% pa. The average has been 3.3% for the last 4 years, however this follows a 4% decline in manufacturing numbers post-recession in 2008 and a further 12% decline in 2009.

Turbo Marketplace

The Turbo Marketplace is divided between 6-players namely:

1. Honeywell 34%
2. BorgWarner 29%
3. IHI 15%
4. Bosch Mahle 3%
5. Continental 3%
6. MHI 3%

(Source: Roland Berger Strategy Consultants)

Honeywell's outlook on the global market in 2019, is 49 million turbocharged new vehicles sold globally each year, representing 43 percent of the market [up from 31 percent in 2013]. In North America, sales of turbocharged vehicles are expected to reach 38 percent of the market in 2019, up from 21 percent in 2014. In China, the market is forecast to grow to 41 percent in 2019 from 23 percent last year and in Europe, 69 percent of the vehicles will be turbocharged in 2019, up from 67 percent last year.

The primary impetus for this shift is the US government's mileage requirement, which is a minimum of 54.5mpg for cars and light trucks by the year 2025, and the EU mileage requirement of 60.6mpg by 2020.

It is unlikely the growth in turbocharged vehicles will stop, as emission requirements are tightening continuously. It is anticipated this growth will be across many different markets and include both diesel and gasoline turbos.

For example: In 2014, 21 percent of gasoline engines were turbocharged, and that number is expected to rise to 38 percent in 2019.

(See <http://www.honeywell.com/newsroom/news/2015/09/honeywell-2015-turbocharger-forecast-signals-increased-expectations-for-turbos-with-global-penetration-nearing-50-by-2020>)

Turbo Costs

Whilst it is difficult to obtain actual turbo cost pricing due to commercial confidentiality agreements between component manufacturers and Original Equipment manufacturers (OEM's), Honeywell indicated recently that it was in the \$100s rather than \$1000s. However, even at sub \$1000 adding two or even three turbos to an engine does increase the manufacturing costs considerably as VW have discovered with the 'Twincharger'. This notwithstanding the additional weight and complexity.

The global market in terms of value for on-highway turbocharger is estimated to be USD 13.6 Billion in 2015 and is projected to grow to USD 22.1 Billion by 2020, at a CAGR of 10.21% for the period 2015-2020.

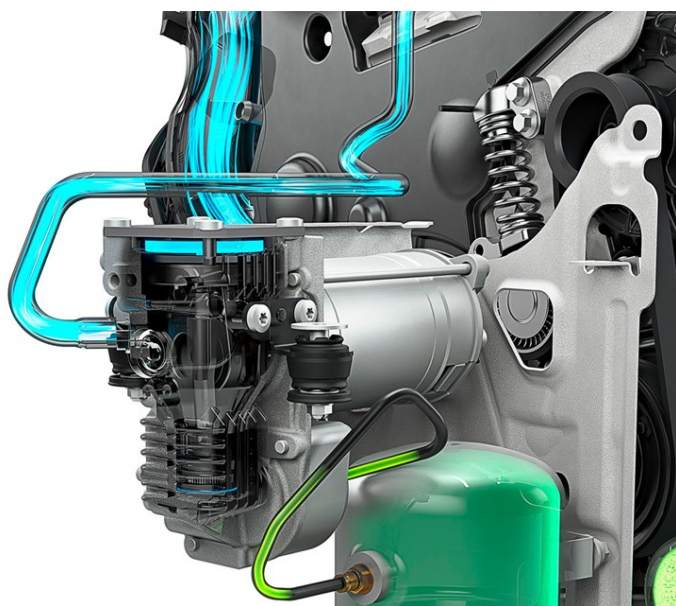
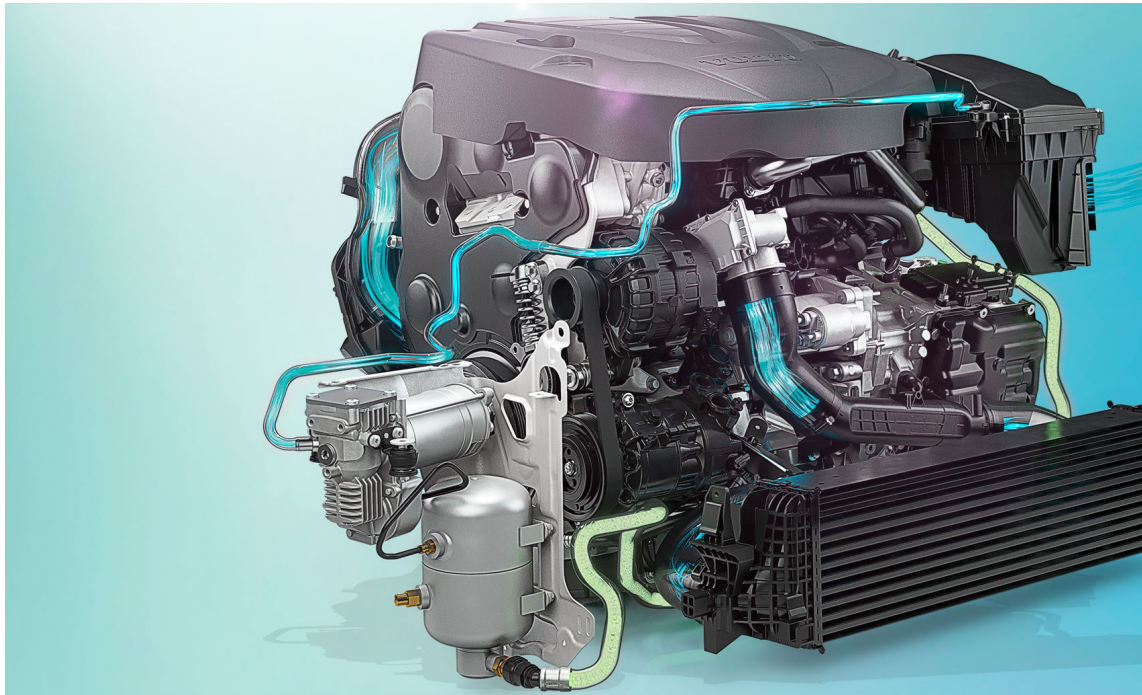
After market pricing is easier to obtain and the following table gives actual pricing for a selection of US vehicles.

Compatible Vehicle	Type of Turbo	Price Range	Link	OEM Numbers
2007-2012 Dodge Ram Pickup Truck 6.7L Diesel Engine				
2007-2012 Dodge Ramcharger 6.7L Diesel Engine	OEM New	\$1997.02 - \$1806.82	Replacement Turbo (Part Number: 40-30146)	3770973,
				3799833,
Re-manufactured		\$1780.72 - \$1611.12		
OEM Kit with Oil Feed Line		\$2032.80 - \$1839.20		
2005-2006 Subaru Legacy Turbocharged Models				
2005-2006 Subaru Outback Turbocharged Models	OEM New	\$1391.25 - \$1258.75	Replacement Turbo (Part Number: 40-30098)	14411-AA510,
				VA430083.
Re-manufactured		\$782.25 - \$707.75		
BAP Kit with Oil Feed Line		\$889.35 - \$804.65		
OEM Kit with Oil Feed Line		\$1447.95 - \$1310.05		
2005-2006 Saab 9-2X Turbocharged Models				
2002-2007 Subaru WRX Non STI Models				
2004-2006 Subaru Baja Turbocharged Models				
2002-2007 Subaru Impreza WRX Models [Non-Sti]	High Performance	\$1149.75 - \$1040.25	Replacement Turbo (Part Number: 40-30149)	14411AA532,
OEM New		\$1044.75 - \$945.25		
Re-manufactured		\$572.25 - \$517.75		
BAP Kit		\$699.30 - \$632.70		
BAP Kit with Oil Feed Line		\$768.60 - \$695.40		
2003-2010 Chrysler PT Cruiser All Turbocharged Models				
2003-2006 Dodge Neon All Turbocharged Models	OEM New	\$1359.75 - \$1230.25	Replacement Turbo (Part Number: 40-30083)	04884234,
				04884234AC,
Re-manufactured		\$750.75 - \$679.25		
BAP Kit with Oil Feed Line		\$784.35 - \$709.65		
BAP Kit		\$729.75 - \$660.25		
OEM Kit with Oil Feed Line		\$1399.65 - \$1266.35		
2004-2004 Dodge Ram Pickup Truck 5.9L Diesel - Late 2004 Models [2004.5 Model Year]				
2005-2009 Dodge Ram Pickup Truck 5.9L Diesel Engine				
2005-2009 Dodge Ramcharger 5.9L Diesel Engine	BAP New	\$619.50 - \$560.50	Replacement Turbo (Part Number: 40-30106)	4036835,

As can be seen by the costs above, even if we assume a 100% margin between the manufacturer level and final reseller, the lowest produced cost would be in the \$250 bracket and the most expensive \$1,000.

In-production Competitor Turbo Solutions

The images below show the production model of a Volvo Power Pulse turbo solution. This is designed to use compressed air as the immediate turbo driver to try and reduce some of the main problems associated with turbocharged diesel engines, namely turbo-lag and engine pumping losses. Whilst it is a good concept it still requires energy from the engine to compress the air used when 'boosting' the turbo, so is actually adding load / inefficiency to the engine.



The VN-Kerb Turbo Solution

VN KERB Turbo Solutions will dramatically improve on the Volvo concept by virtually eliminating turbo lag and engine pumping losses that affect the cars drive-ability without increasing engine load or inefficiency. The VN-KERB-TS has no requirement for a separate electric motor, or electrical infrastructure to support it, and neither does it act as a parasitic load on the engine.

VN-KERB-TS is targeting the virtual elimination of turbo lag in order to increase the flexibility of the engine performance across a greater range of transient conditions, so that manufacturers have the choice of 2 options:

1. Increase the power and performance of a diesel or petrol engine, whilst reducing complexity, weight and cost over existing turbocharger or supercharger boosting solutions
2. Enable manufacturers to right-size the whole of their engine range to assist them in improving mpg, reducing emissions and hit the target of 95g of CO₂ per kilometer by 2020, without adversely affecting the driveability of their cars, in particular degrading their performance by reducing engine size in order to improve mpg and reduce emissions.

The VN-KERB-TS can achieve this by reducing the number of turbochargers required on larger diesel engines, hence reducing weight, complexity and cost.

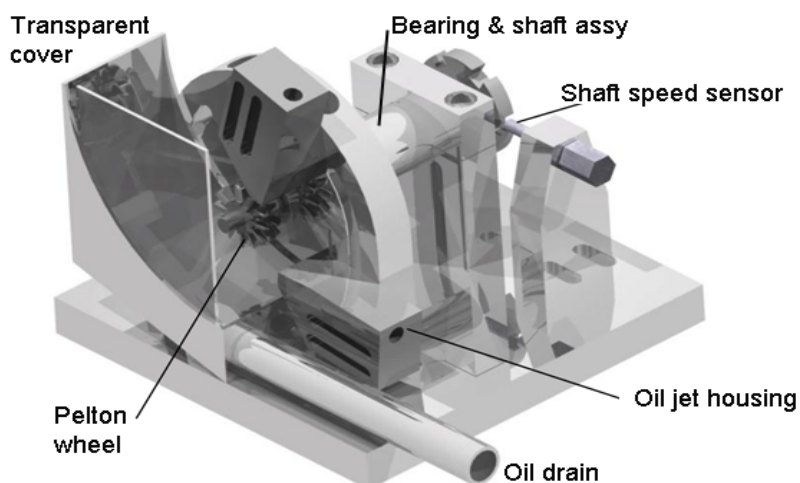
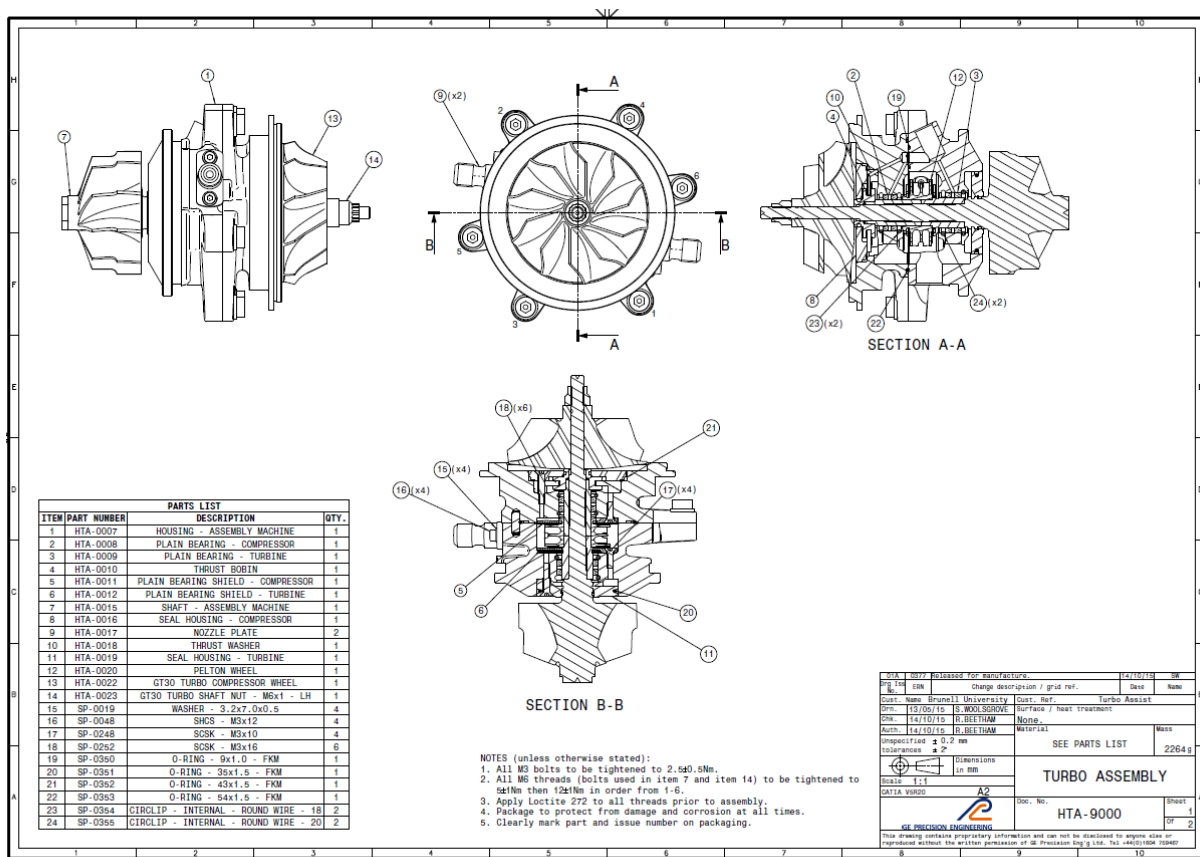
Compared to modern turbo diesels, the system offers transient in-vehicle acceleration equivalent to a modern turbo diesel but without the exhaust restriction and high engine pumping losses associated with modern Variable Geometry Turbocharger (VGT).

The successful development and delivery of VN-KERB-TS will improve power delivery and virtually eliminating turbo lag on petrol engines enabling reductions in engine size, weight complexity and cost.

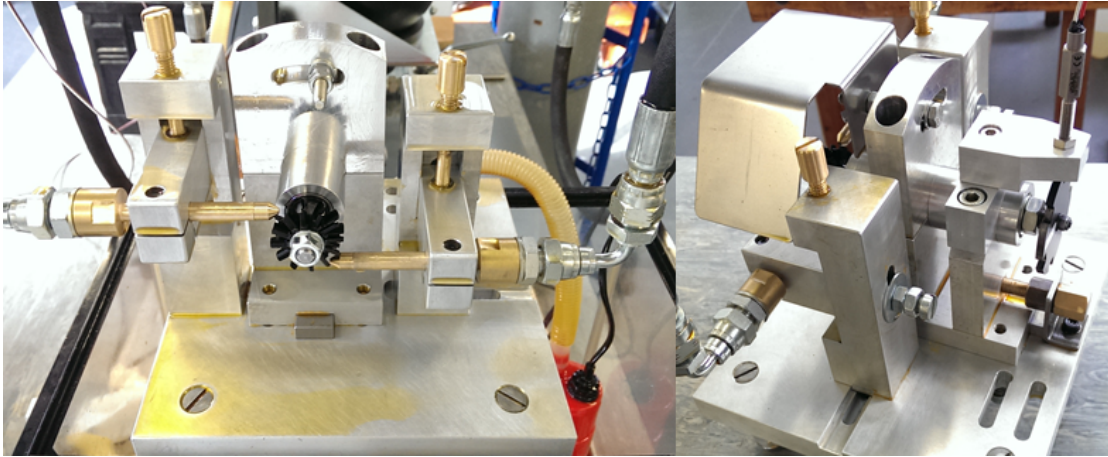
When compared to modern downsized turbocharged gasoline engines, the system actually offers improved in-vehicle acceleration without the need for complex compound boosting systems involving two or more boosting methods e.g. supercharger or turbocharger.

The system is highly compatible with hydraulic hybrid vehicle platforms being proposed as alternatives to the electric hybrid, as the bulk of the additional components already exist. The only new part required is the modified turbocharger assembly, as the system can tap into the existing hydraulic circuit. Hydraulic hybrids are only attractive for medium to heavy duty (as the hydraulic components are heavy) but can recover a much higher proportion of vehicle braking energy (up to 70% c.f. 30% in an electric hybrid).

Prototype turbo design

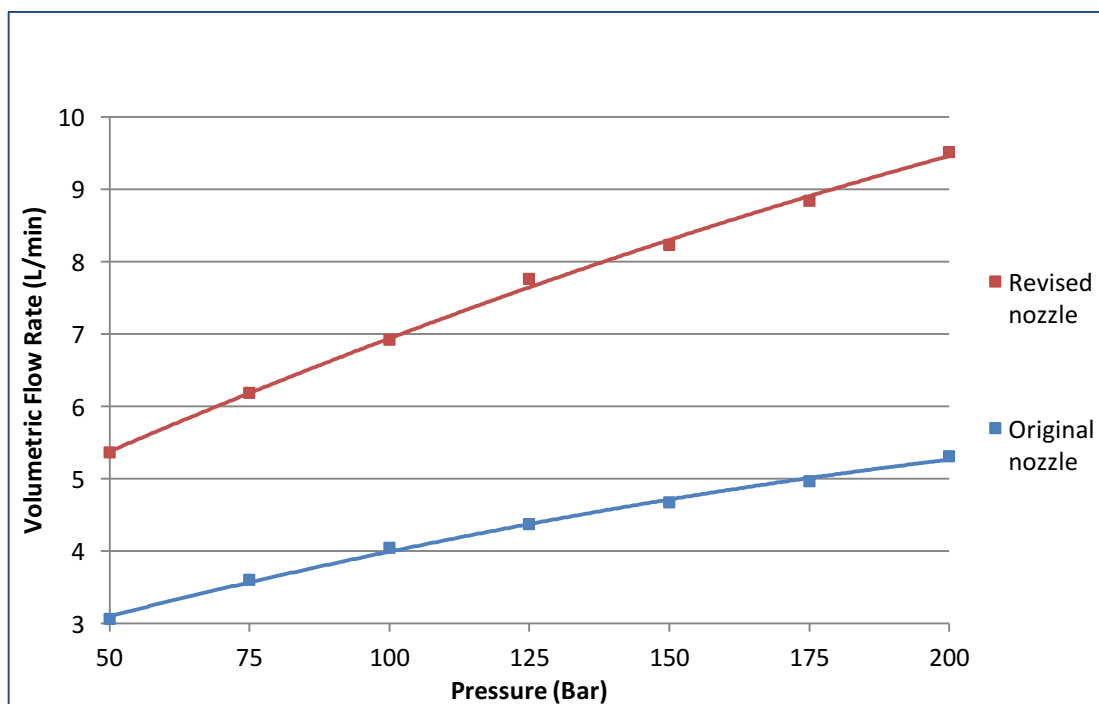


Pelton Wheel Development



Rig used in prior research

Nozzle Placement Development



Previous development of the system oil nozzle to achieve increased oil flow and hence power to accelerate the turbocharger for a given oil pressure.

Competing Technologies

Compound supercharged-turbocharged

This is a proven mechanical technology but is expensive to manufacture & install. It also leads to poor 'real world' fuel economy as the supercharger is mechanically driven off the crank.

VW used this in production in their "Twincharger" and subsequently dropped it due to poor fuel consumption.

(See <https://www.carthrottle.com/post/volkswagens-superb-twincharger-engine-meets-its-maker>)

E-boosting

This requires complex electrical components with sustainability and heat management issues. Also typically fitted as an additional entire machine, with corresponding weight and cost.

(See <http://www.greencarcongress.com/2015/07/aeristech-launches-new-48v-electric-supercharger.html>)

(See <http://www.greencarcongress.com/2016/02/20160224-pierburg.html>)

(See <http://articles.sae.org/14662>)

Volvo PowerPulse (See page 16)

This recently entered production in diesels but doesn't recover braking energy. Questions remain about compatibility with all modern powertrains, as with this solution the excess air is pushed into the exhaust that can elevate temperatures to excessive levels and lead to higher emissions.

(See <http://www.carmagazine.co.uk/car-news/tech/volvos-turbo-lag-solution-is-just-hot-air-car-may-2016>)

The Business Model

Revenue Streams or Exit Returns

There are 2 potential routes to revenue or Investor exit in this business model, namely:

1. Take the technology to production, (TRL10) with Original Equipment Manufacturer, OEM and suppliers onboard. Revenues generated shared with consortium partners through 'rights of use' and licence sales of the VN KERB turbo solution
2. Commercialisation at TRL6/7, e.g. trade sale.

Option 1 – Worked Example

On the basis of Market Research carried out by VN-KERB-TS, there are 49 million turbo charged vehicles projected to be in production by 2019.

The 'rights of use' licence selling price is usually calculated within the automotive industry using the '25%' rule.

(See <http://www.ajpark.com/introduction-to-ip/i-need-help-with-strategy-commercialisation/guide-to-royalties-and-licence-fees>)

Party A (VN-KERB-TS) licences Party B (Honeywell) to make, use and sell the new turbo. Party A has a patent or rights of development licence for the KERB Turbo. Party B's long term projections show that:

Party B expects to sell the Turbos for £100 plus sales tax each;

Party B's projected costs per unit over the long term are approximately £60, leaving a pre-tax operating profit per unit of £40.

Under the '25% rule'; 25% of Party B's £40 per unit profit should go to Party A. That is 10% of the unit's £100 sale price. So Party A and Party B agree that Party B will pay a royalty of 10% of Party B's net sales.

In this example Party B is Honeywell with 34% of the market share. This equates to a 16.7m units pa market opportunity, which is a potential revenue stream of £166.7m pa to VN KERB TS.

Example of Option 2

In this option there are number of examples that demonstrate the possible value of a company with a solution of a similar nature to VN KERB TS, and at a TRL level of 6/7 that were sold prior to full production of the technology. One in particular is the purchase of Control Power Technologies by Valeo. The systems developer Control Powered Technologies, which sprung to life in a management-led buyout of a former Visteon Tigers operation in 2007, used continued governmental pressure to improve fuel economy and reduce emissions worldwide as its platform to develop electric superchargers.

The french supplier Valeo paid £30 million (\$46.7 million) for the VTES technology and an engineering operation that included development hardware, validation rigs and 10 of CPT's 33 employees.

CPT estimates carbon-dioxide emissions could be reduced 15%-25% in a vehicle using the micro-hybrid technologies at a cost of €750-€1,500 (\$1,000-\$2,000), well below what it says is the €1,600-€10,000 (\$2,100-\$13,000) outlay for mild, full and plug-in hybrid powertrains.

(see <http://wardsauto.com/technology/valeo-s-supercharger-buy-could-pay-quick-dividend-signals-win-developer-cpt>)

Structure for Investment in the Company

The Company intends to raise £1,050,000 in two tranches to enable it to deliver the project and to provide for the Company's overhead and working capital:

- (i) Round 1: £ 150,000
- (ii) Round 2: £ 900,000

Initial subscription for 150 Shares in the Company is being made to parties interested in becoming Round 1 'New Founder Shareholders'.

Prior to the subscription of equity capital by the Round 1 'New Founder Shareholders', the Founding Shareholders, with their associates, negotiated terms for the IP development licence, access to the original scientific research file, access to the results from, and test rights to, all further KERBS research previously carried out by Professor Al Cairns. They also created the business plan, negotiated consultancy / services supply contracts with the necessary industry partners to deliver the project, and submitted to HMRC for SEIS Advanced Assurance, thus enabling the company to be successfully positioned to deliver profitable revenue streams derived from sales of the KERB Turbo Solution to the automotive industry once the technology is developed.

In consideration of this, the Founding Shareholders currently hold, and will retain, 1,000 shares. The Company is issuing a further 150 shares priced at £1000 per share to the NFSH upon successful closing of Round 1 funding. In Round 2 the Company will issue a further 450 shares priced at £2,000 per share.

Upon the successful closing of the Round 2 funding, the Founder Shareholders (FS) will have been diluted to 62.5%, Round 1 New Founder Share Holders (NFSH) to 9.38%, Round 2 subscribers and (R2S) to 28.12%

All new subscribed funds will be used to pay for the project proof and development, acquisition of any identified (now or in the future) external expertise or know how, IP registration, legal fees, and to meet the assembly and working capital and costs of the Company, as below:

Projected Development cost (including VAT)	£ 945,000
Capital Raising and Project Assembly Costs	£ 63,000
Legal and Accounting Costs	<u>£ 42,000</u>
TOTAL	£1,050,000

The Company has budgeted for a distribution fee equal to 6% of the capital raised by the Company through the issue of the Shares, less any amount payable by the Company in respect of any introductory fees payable to authorised third parties.

Options on 100 of the original Founder Shares at a Strike Price of £0.01 have been issued to the 'Automotive Director' Alasdair Cairns in lieu of salary or contract fees as compensation for all assistance, direction, technical input and project management the company may require to succeed in meeting the milestones planned, the successful delivery of profitable revenue streams, or an exit. These options may not be exercised within three years of the date of Round 2 closing and then only in the event of a change of ownership in the company or in the event of a public offering for the shares in the company.

Successful Project

The project will be deemed successful in two stages:

The Stage 1 - TRL3 to TRL4 deliverables are:

1. Steady state and transient cold rig testing, with full analysis
2. Engine dynamometer testing (steady state and transient, cold and warm) and sufficient positive results to warrant further investor funding.

The Stage 2 - TRL 4 to TRL6/7 deliverables are:

1. On-engine demonstration with OEM and supplier support achieved two years after initiation e.g. ready for APC funding bid.

Whilst the Directors seek an exit at the year 4-5 point the shareholders will share in any initial and all ongoing profits resulting from Design, Consultancy, Technology sales or 'Rights of Use' revenue generated by the Company within the target Industries on an annual dividend basis.

Note: Dividends paid may be subject to tax in the investor's hands at the relevant rate at the time payment is made.

Unsuccessful Project

In the event that the project is not successful or it is determined that it is not commercially viable to continue with the sales and development effort at any of the milestone points described within the development program, the Directors undertake that the Company will not incur creditor liability beyond the amount raised in the funding rounds pre revenue, therefore:

- a) The Company may be sold to a third party for the value of any residual assets and the proceeds distributed amongst the investors
- b) The Company may be put into liquidation, the liquidated assets sold and the proceeds distributed amongst the investors.

In either of the above, the disposals will require shareholder approval to a special resolution on the action to be taken.

Exit Strategy and Potential Returns to Subscribers

The Directors plan an Initial Public Offering of the shares in the company between 2020 and 2022 or at such time as the Directors believe a significant multiple on initial investment may be achieved for subscribers.

No guaranteed forecast can be given of the likely or potential returns to Subscribers upon the successful delivery of the project. Therefore, given current market uncertainties, allowances have been made for a broad spectrum of returns, on the basis of Market Research carried out by VN-KERB-TS.

In the licencing scenario outlined on page 21 of this document VN-KERB-TS are budgeting for royalty income in 2020. The companies fixed annual operating costs are budgeted at £250k in 2020 rising to £500k in 2022.

Licence sales will follow the automotive 'channel supplier' and OEM route with potential partners identified and marketed to, whilst the initial PR campaign commences. VN-KERB-TS will completely outsource the manufacturer of new turbo devices to third party specialist service providers, retaining only the scientific development, product technology design, supply chain audit, management, certification and licence sales and marketing elements of the business.

Penetration into the licenced 'rights of use' automotive marketplace is restricted by the number of prototype designs VN-KERB-TS can produce annually, and by the number of different engines adopting the technology.

Example market penetrations are:

1. 0.5% penetration of projected new vehicles fitted with turbo drives in 2020
2. 1% penetration of projected new vehicles fitted with turbo drives in 2020
3. 2% penetration of projected new vehicles fitted with turbo drives in 2020
4. 5% penetration of projected new vehicles fitted with turbo drives in 2020
5. 10% penetration of projected new vehicles fitted with turbo drives in 2020

Note* The following charts assume:

1. The projected industry number of 49 million vehicles using turbo drives in 2020.
2. An average turbo drive sale price of £100
3. A 10% of sale price royalty income
4. No income recorded for up-front design charges or one-off royalty payments.

Round 1 SEIS @ £1000 per Share

Minimum Investment			£20,000 = 20 Shares		
Rights of use licence royalties £10 each - Turbo devices sold at £100 per unit			Potential Return on Investment		
Year	EBITDA	Sales Projections	P/E	P/E	P/E
			7	10	12
2020	£2,450,000	Scenario 1	£214,375	£306,250	£367,500
2020	£4,900,000	Scenario 2	£428,750	£612,500	£735,000
2020	£9,600,000	Scenario 3	£840,000	£1,200,000	£1,440,000
2020	£24,500,000	Scenario 4	£2,143,750	£3,062,500	£3,675,000
2020	£49,000,000	Scenario 5	£4,287,500	£6,125,000	£7,350,000

Round 2 EIS @ £2,000 per Share

Minimum Investment			£20,000 = 10 Shares		
Rights of use licence royalties £10 each Turbo Devices sold at £100 each			Potential Return on Investment		
Year	EBITDA	Sales Projections	P/E	P/E	P/E
			7	10	12
2020	£2,450,000	Scenario 1	£ 107,188	£153,125	£ 183,750
2020	£4,900,000	Scenario 2	£ 214,375	£306,250	£ 367,500
2020	£9,600,000	Scenario 3	£ 420,000	£600,000	£ 720,000
2020	£24,500,000	Scenario 4	£ 1,071,875	£1,531,250	£ 1,837,500
2020	£49,000,000	Scenario 5	£ 2,143,750	£3,062,500	£ 3,675,000

The potential investor returns assume the following:

1. A minimum New Founder Shareholder investment of £20,000
2. Shares in the company are offered for sale to the public
3. Market penetration assumption numbers 1-5 above are met
4. Shares in the company trade at a significant multiple of the underlying earnings per share

Note: These figures were prepared using Industry P/E ratios prevailing in July 2015.

Note: None of the figures contained in this section are guaranteed as they rely on a range of assumptions that may ultimately prove to be inaccurate. Accordingly, subscribers should not rely on these figures, which are not guaranteed by the company, when making a decision to subscribe for shares.

Terms, Conditions and Procedures for Subscription in the Round 1 – SEIS Raise.

1. Subscriptions for the Shares are subject to the terms and conditions set out below.
2. Subscribers will subscribe for Ordinary 1p shares in the Company at a premium of £999.99 per share, giving a subscription price per share of £1000.00.
3. The Minimum Individual Amount of £25,000 will be a subscription for 25 shares. The Directors retain the option to vary the amount. Currently the Founding Shareholders hold the 1,000 Ordinary Shares (1p each) issued shares by the Company and the New Founder Shareholders will own 150 Ordinary Shares.
4. The full subscription of £150,000 under this offer, as satisfied wholly through the proceeds derived from the allotment of the Round 1 shares, will be a subscription for 150 shares. At the time that these shares are issued, the total issued shares of the Company will be 1150 shares, of which the NFSH will hold 13.04% and the Founding Shareholders 86.96% via their 1,000 shares.
5. The offer of subscription will be closed immediately on the receipt of applications for the full amount required by the Company or such earlier date as the Directors may decide by any changes in circumstances that may affect the start date of the project, including any Government or Technology Strategy Board offered co-funding, grant funding, a negotiated reduction of the Stage 1 development budget, operational availability of the technical partners, legislative or regulatory requirements.
6. The Directors at their absolute discretion will determine the basis of allotment. The Letter of Subscription should be completed in full and sent or delivered to the Company, as set out in the Letter of Subscription together with the due payment to be made by bank transfer to the designated " client bank account" set up for VN-KERB-TS and operated by Simmons Gainsford LLP. The Directors may have to scale down applications or they may accept them on a first come, first served basis or otherwise.
7. Upon completing and delivering the Letter of Subscription at the end of this Information Memorandum, a fourteen-day period shall commence (cooling-off period) during which the Subscriber may withdraw the Letter of Subscription.
8. If the Letter of Subscription is not so withdrawn, the Subscriber undertakes and confirms as follows:

- a) To subscribe for the number of Shares specified in the Letter of Subscription on the terms of, and subject to, the conditions set out in this Information Memorandum and the Company's Articles of Association, including these terms and conditions
- b) That a subscription for the Shares shall be deemed to be an offer to subscribe up to the value of the Subscriber's subscription and that such offer shall be deemed to take effect on dispatch by post of the Letter of Subscription
- c) To accept such Shares as may be allotted to the Subscriber in accordance with the Letter of Subscription or such smaller amount as the Directors may determine prior to the allotment of the Shares
- d) That all subscriptions, acceptances, allotments and contracts arising from the Letter of Subscription will be governed by and construed in accordance with English law and the English courts will have exclusive jurisdiction to determine any disputes
- e) That the Subscriber is not under the age of 18 and that if the Subscriber signs the Letter of Subscription on behalf of somebody else, or a corporation, that the Subscriber has the authority to do so and such person will also be bound accordingly and will be deemed also to have given the confirmations, warranties and undertakings contained in these terms and conditions of subscription
- f) The Subscriber authorises the Company or any of its respective agents to send by post certificates for the number of Shares for which his subscription is accepted, to his or her address (or that of the first named Subscriber) as set out in the Letter of Subscription and to procure that his name(s) together with the name(s) of any other joint Subscriber(s) is/are placed on the Share register of the Company in respect of such Shares
- g) That the Subscriber is not relying on any information or representation other than those contained in this Information Memorandum and accordingly he or she agrees that neither the Company nor any person responsible solely or jointly for this Information Memorandum or any part thereof shall have any liability for any such other information or representation in the absence of fraud
- h) That the Subscriber is a person in one or more of the categories listed in the Important Regulatory Notice on the first page inside this Information Memorandum, namely a Certified High Net Worth Investor, a Sophisticated Investor or a Self-Certified Sophisticated Investor

- i) That the advisers to the Company named in this Information Memorandum are acting for the Company and not acting for the Subscriber and that accordingly, they will not be responsible to the Subscriber for providing protections afforded to their clients for advising the Subscriber on the information in this Information Memorandum or ensuring that the Shares are suitable for the Subscriber
 - j) That the Subscriber has read and complied with the Terms, Conditions and Procedures for Subscription.
9. No person receiving a copy of this Information Memorandum and Letter of Subscription in any other territory (other than the United Kingdom) may treat the same as constituting an invitation to him or her to subscribe, nor should he or her in any event use such Letter of Subscription, unless in the relevant territory such an invitation could lawfully be made to him or her and such Letter of Subscription could lawfully be used without contravention of any regulation or other legal requirements.
10. It is a condition of any subscription by any such person outside the United Kingdom that he or she has satisfied themselves as to the full observance of the laws of any relevant territory, including the obtaining of any governmental or other consents which may be required and has observed any other formalities in such territory and paid any issue, transfer or other taxes due in such territory.
11. The Company reserves the right to request Subscribers to produce evidence satisfactory to them of their right to subscribe for the Shares and that such subscription would not result in the Company, its advisers or the Directors being in breach of any laws or regulations of the relevant jurisdiction.
12. The Company reserves the right to treat any subscription, which does not comply strictly with the terms and conditions of the subscription as nevertheless valid.
13. Subscriptions will be irrevocable.
14. By completing and delivering a Letter of Subscription, the Subscriber declares that he or she has read, understood and agreed to the terms and conditions contained in this Information Memorandum (including the Risk Factors), the Letter of Subscription, and where applicable, these Terms and Conditions for subscription and that he or she has taken all appropriate professional advice which he considers necessary before submitting the Letter of Subscription and that he is aware of the special risks involved and he understands that his subscription is made upon the terms of the aforementioned documents.

Risk Factors

➤ Share Liquidity and Currency

- There is no established market in the shares. Accordingly, any subscriber may be unable to dispose of their shares
- Subscribers will subscribe in pounds sterling; revenue proceeds may be in currencies other than sterling. The exchange rate between currencies is subject to continuous fluctuation and can distort the net returns arising
- Potential Subscribers are reminded that this investment may not be suitable for all recipients of this Information Memorandum and are accordingly advised to consult an investment adviser who is authorised under the Financial Services and Markets Act 2000 before making the decision to subscribe. The ability of the project to pay costs which are in a currency other than that of sterling may be impaired by an adverse exchange rate.

➤ The Company's Stage 1 business involves a degree of risk, inasmuch as:

- Whilst it has access to a substantial amount of research and data regarding the KERB-TS technology, and has a full IP exploitation licence for the use of such technology within the automotive field granted by the IP owner, the KERB-TS technology has been proven in the laboratory environment only, i.e. not in a real world vehicle
- The design engineering being utilised to enable the KERB-TS to operate as an integral part of an automotive power train will be modelled upon known and industry recognised technology, utilising 'industry standard' materials and certification emission requirements. However, it has not been used in conjunction with the automotive industry technology to date and could therefore fail upon testing
- Although best endeavour has been used to verify all the scientific research and data the Company is relying on for this project, it may transpire when physically tested onboard a vehicle, not to be a reliable or relevant solution
- The market uptake for a KERB-TS type product is unproven. For the technology to be successful within the industry it has to prove its capability, efficiency, reliability and price point. Albeit uptake of the solution at a developmental level will be driven by current legislation that forces manufacturers to reduce CO₂ emissions, their need to find cost effective solutions to right-size engines will be a vital part of that

process. However, there is no guarantee that the KERB-TS technology will become the industry's preferred right-sizing engine solution.

- Estimates of potential value and costs may not be reliable inasmuch as:
 - The potential licence income values are illustrations based on available comparable industry information
 - The estimates are subject to market input variables that cannot be determined until the unit is developed and ready for market
 - The illustrations of potential income value in this Information Memorandum may, accordingly, not be reliable despite the Directors best efforts to judge them accurately.
- Enterprise Investment Scheme
- A condition of HMRC's approval of EIS is that the conditions relating to the Company and its trade have to be complied with throughout the three-year period following the issue of the Shares. Although it is the intention that the Company's activities should qualify under the EIS, if the conditions are not complied with, the Company would have breached the EIS regulations and EIS income tax relief would be withdrawn.

Statement of Certified High Net Worth for Individuals

I declare that I am a certified high net worth individual for the purposes of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2005.

I understand that this means: -

- a) I can receive financial promotions that may not have been approved by a person authorised by the Financial Conduct Authority
- b) The content of such financial promotions may not conform to rules issued by the Financial Conduct Authority
- c) By signing this statement I may lose significant rights
- d) I may have no right to complain to either of the following:

- (i) The Financial Conduct Authority or
- (ii) The Financial Ombudsman Service

- e) I may have no right to seek compensation from the Financial Services Compensation Scheme.

I am a certified high net worth individual because at least one of the following applies: -

- a) I had, during the financial year immediately preceding the date below, an annual income to the value of £100,000 or more; or,
- b) I held, throughout the financial year immediately preceding the date below, net assets to the value of £250,000 or more.

Net assets for these purposes do not include:

- (i) The property which is my primary residence or any loan secured on that residence; or
- (ii) Any rights of mine under a qualifying contract of insurance within the meaning of the Financial Services and Markets Act 2000 (Regulated Activities) Order 2001, or
- (iii) Any benefits (in the form of pensions or otherwise) which are payable on the termination of my service or on my death or retirement and to which I am (or my dependants are), or may be, entitled.

I accept that I can lose my property and other assets from making investment decisions based on financial promotions.

I am aware that it is open to me to seek advice from someone who specialises in advising on investments.

Name: Address:.....

.....

.....

Please print in block capitals

Signature: Date:

Please sign here

Please Date

Letter of Subscription

To: The Directors of VN-KERB Turbo Solutions Limited
C/o Simmons Gainsford LLP,
4th floor, 7/10 Chandos Street,
London, W1G 9DQ

Dear Sirs,

OFFER FOR SUBSCRIPTION – 150 Ordinary Shares of 1p each in the Company @ £1000 per share

I request and authorise you to register any allotted Shares for which this application is accepted in the name(s) set out below in the Company's Share Register and to forward the definitive certificate or any moneys returnable by post to the first named person below at his/her risk.

Any capitalised term, which is not defined in this letter, has the same meaning given to that term in the Information Memorandum.

I refer to the Information Memorandum issued by the company dated January 2016 (the "Information Memorandum") and confirm I am Certified High Net Worth individual within the meaning of The Financial Services and Markets Act 2000.

I agree to provide the Company (and its professional advisers) with such evidence, as, in its absolute discretion, it requires as to my identity or that of any persons on whose behalf I am acting for the purpose of all money laundering rules and regulations currently in force in the United Kingdom.

I have arranged for payment of the full amount of the subscription for the Shares to be made to the Company c/o the designated client account set up and operated by Simmons Gainsford LLP representing the Company.

I declare that I am resident in the United Kingdom.

VN-KERB Turbo Solutions Limited

SUBSCRIPTION FOR ORDINARY SHARES OF 1P EACH IN THE COMPANY

Please complete using block capitals:

I..... hereby offer to subscribe for Shares in the capital of the Company on the Terms, Conditions and Procedures for Subscription contained in the Information Memorandum and the Memorandum and Articles of Association of the Company, with a total subscription consideration of £.....

Any term, which is not defined in this letter, has the same meaning given to that term in the Information Memorandum.

Yours faithfully

.....
(Signature of Subscriber/Applicant)

Date.....

.....
Address

SEIS Information

Fax 03000 582 456

Email enterprise.centre@hmrc.gsi.gov.uk

Date 06 December 2016
Our ref WMBC/MSB/S0970/81933 00971/SCEC
Your ref

Web www.hmrc.gov.uk

Dear Sir/Madam,

VN KERB Turbo Solutions Ltd – Seed Enterprise Investment Scheme – Advance Assurance

Thank you for your application dated 11 November 2016. I am pleased to confirm that, on the basis of the information you have supplied, I would be able to authorise the company to issue certificates under Section 257EC(1) ITA 2007 in respect of Ordinary Shares issued to individuals following receipt of a properly completed form SEIS1.

Please note that:

- Responsibility for the accuracy of the information supplied and considered by me rests wholly with the company.
- This provisional assurance is based solely on the information supplied in and with the clearance application and will not apply in circumstances that vary from those described. You are advised to forward particulars of any proposed changes, or the draft of any shareholders subscription, investment or similar agreement, for further clearance before the issue of shares.
- This clearance does not guarantee the availability of any form of relief under the Seed Enterprise Investment Scheme to any particular subscriber.
- This assurance is given on the basis of the legislation as enacted at the date of this letter. In the event of any changes to the legislation which take effect on or before the date of any share issue, the assurances given may not continue to apply.

Yours faithfully



Miss L M Phillips
H M Inspector of Taxes

Information is available in large print, audio and Braille formats.
Text Relay service prefix number – 18001



Assistant Director: Tim Bowes

The summary below provides an *indicative guide* to the tax implications stemming from an investment in VN-KERB Turbo Solutions Ltd and is based on current understanding of UK tax law and practice. *It does not set out all of the rules or regulations that must be adhered to and should not be interpreted as the provision of tax, legal or financial advice.* Investors are strongly recommended to seek independent professional advice on the tax consequences of acquiring, holding and disposing of SEIS qualifying Shares before proceeding with an investment into the Company.

The Round 1 NFSH raise has been structured with the intention to enable investors to claim SEIS reliefs on the amount of their subscription, as described below. The amount and timing of these reliefs will depend on the individual circumstances of each investor and may be subject to change in the future. The illustrations included in this section are for indicative purposes only and should not be construed as forecasts or projections of the likely performance of the Company.

In order to access the tax reliefs described it is necessary to be a UK resident taxpayer and subscribe for SEIS qualifying Shares. The summary below gives only a brief outline of the available tax reliefs and assumes that an investor is an additional rate taxpayer.

1. SEIS Income Tax Relief:

Investors who are not connected to an SEIS Qualifying Company can claim income tax relief of up to 50% on amounts subscribed for SEIS qualifying Shares, subject to an aggregate investment limit of £100,000 during any one tax-year. Income tax relief is given by way of a reduction in an investor's tax liability for the tax-year in which the investment is made. The total income tax relief cannot exceed an amount that reduces the investor's liability to nil. Similar to EIS, an investor can "carry back" a SEIS investment to the prior year for income tax relief purposes, and so from 2013/14 onwards it is possible for an investor to make a total investment of £200,000 if the full £100,000 is carried back to 2012/13.

Income Tax Relief for 2013/14 (example)

Gross Investment in qualifying SEIS shares	£25,000
Less Income Tax Relief @ 50%	<u>(£12,500)</u>
Net cost of Investment	<u>£12,500</u>

2. SEIS Capital Gains Tax ("CGT") Re-Investment Relief:

This relief is currently available for chargeable gains arising in the tax-years 2014/15 and 2015/16 (the latter is the year in which the SEIS shares will be issued). If an investor disposed of an asset which gave rise to a chargeable gain in 2014/15, and reinvests all or part of the amount of the gain in shares which also qualify for SEIS income tax relief, then by electing to "carry back" to 2014/15 the amount reinvested will allow a full deferral of the original CGT liability and the original gain will be fully exempt from CGT.

If an investor disposes of an asset which gives rise to a chargeable gain in 2015/16, CGT re-investment relief will also be available for a SEIS investment made in 2015/16. This will allow for a full deferral of the current CGT liability but the future exemption from CGT (on the original gain, which is brought back into CGT charge when the SEIS shares are disposed) will be restricted to 50% of the gain only.

The asset does not have to be disposed of first; the investment in SEIS shares can take place before disposal of the asset, providing that both disposal and investment occur in the 2015/16 tax-year. Alternatively an investment into SEIS made in 2015/16 can be “carried back” to 2014/15 for both income tax and CGT re-investment purposes.

CGT Re-Investment Relief examples: full exemption (2014/15) and partial exemption (2015/16)

	<u>2014/15</u>	<u>2015/16</u>
Gross investment in qualifying shares	£25,000	£25,000
Less income tax credit	(12,500)	(12,500)
Less CGT exemption (Re-Investment Relief) @28%	(7,000)	(3,500)
Net cost of investment (after IT/CGT relief)	£ <u>5,500</u>	£ <u>9,000</u>

3. CGT Disposal Relief

Where an investor has received SEIS income tax relief (which has not subsequently been withdrawn) on the cost of the qualifying Shares, and the SEIS qualifying Shares are disposed of after the minimum period any capital gains are free from CGT. If no claim to income tax relief is made, then any subsequent disposal of the shares will not qualify for exemption from CGT.

Disposal after three years	£50,000 (example only)
Original cost	<u>(25,000)</u>
Tax-exempt capital gain	£ <u>25,000</u>

4. Share Loss Relief

Capital losses realised on the ultimate disposal of SEIS qualifying Shares (net of income tax relief attributable to the investment) may qualify for share loss relief. The amount of the net loss may be set off against capital gains in the tax-year of disposal or carried forward for relief against future capital gains. Alternatively, an investor may elect to set off the net loss against income arising in the tax-year of the disposal or the previous tax-year.

In the case where no proceeds are received on disposal of the SEIS qualifying Shares, the maximum net loss (after the income tax credit of 50%) on an investment of £25,000 would be £12,500; however this is reduced to £6,875 on a post-tax basis (based upon share loss relief at a future 45% income tax rate).

By making a claim for both income tax relief (50%) and full CGT re-investment exemption (28%), an investor can reduce the initial cost of their investment to 22p for £1 subscribed. When full share loss relief is factored in (effective relief up to 22.5%) the potential net cost of an investment in the Fund is nil, as tax relief will have exceeded the initial cash outlay. Where there is partial CGT exemption, the comparative net cost in the situation when a total capital loss occurs is 13.5p per £1 invested.

5. Inheritance Tax Relief

On the basis that the investment will be in an SEIS qualifying company, this should mean that SEIS Qualifying Shares will constitute “relevant business property” as defined in Inheritance Tax Act (IHTA). Provided the SEIS qualifying Shares are held for a period of not less than two years they should qualify for 100% business property relief, which would reduce any IHT liability arising on transfer of the SEIS qualifying Shares to nil.

If the investor dies within the two-year period and his or her spouse inherits the SEIS qualifying Shares, the holding period of both the investor and the spouse are combined in order to determine whether the 2 year holding period condition has been satisfied on death of the spouse.

SEIS Rules

There are a number of conditions to be met. These, fall into two categories – those which must be met throughout the minimum period commencing with the issue of the shares, and those which must be met at the time the SEIS shares are issued.

Minimum Period Conditions

The Company must, throughout the minimum period:

- Not be under the control of another company or control another company other than a qualifying subsidiary (nor can there be arrangements for the Investee company to be under the control of another company or control another company other than a qualifying subsidiary)
- Either be a company which exists wholly for the purpose of carrying on a new qualifying trade (being a qualifying trade which commenced less than two years before the issue of the SEIS shares) or a parent company of a group which does not consist wholly or as to a substantial part in the carrying on of non-qualifying activities
- Carry on the new qualifying trade, prepare to carry on that trade or carry out research and development activities from which a new qualifying trade will be derived or from which a new qualifying trade will benefit either itself or through a 90% subsidiary
- Have a permanent establishment in the UK.

Issuing Conditions:

- The Company must be unquoted and there must be no arrangements in place for it to cease to be unquoted
- The Company may not have gross assets of more than £200,000 immediately before it receives a subscription for eligible shares. If the company is a parent company, the value of the group's gross assets must not exceed £200,000 immediately before it receives the subscription for eligible shares
- The maximum amount that a company may receive from SEIS investors is £150,000 in any three-year period ending with the investment then being made. Neither the investee company nor any subsidiary may have previously received any EIS or VCT investments

- The Company must have fewer than 25 full-time employees at the date of issue of shares to SEIS investors
- The Investee Company must not be in financial difficulty.

Claiming SEIS Relief

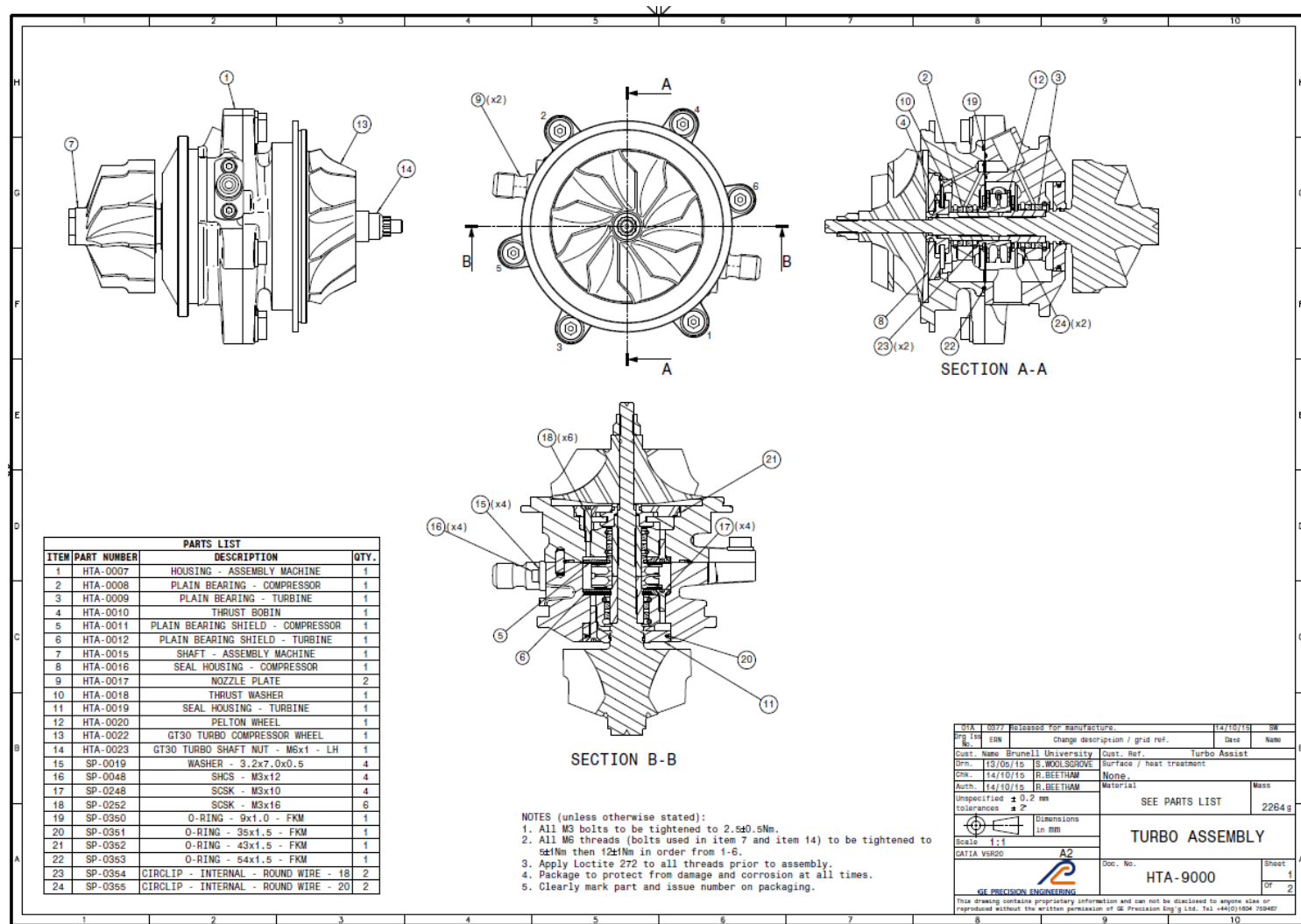
An investor cannot claim income tax relief until the Company has submitted an SEIS1 form and HMRC has issued a compliance certificate to confirm that it is SEIS qualifying. An application will be made to HMRC once the Company has been trading for four months, or if earlier, when more than 70% of the SEIS monies have been spent on the qualifying activity. It anticipated that the Company would distribute claims forms to investors within 8 months after the closing Date.

Relief must be claimed within five years after 31 January following the year of assessment in which the investment was made. Investors are strongly recommended to seek professional tax advice on making claims for SEIS relief as personal circumstances may differ.

Schedule 1 – Financials

Year	2020	2021	2022	2023
Licence Royalty	£10	£10	£10	£10
Turbo Unit Sale price	£100	£100	£100	£100
OEM Design & Consultancy for Manufacture				
Number of Designs pa	5	5	5	5
Design Cost per unit	£50,000	£50,000	£50,000	£50,000
Design Charge	£100,000	£100,000	£100,000	£100,000
Design Gross Profit	£50,000	£50,000	£50,000	£50,000
Design Net Income	£250,000	£250,000	£250,000	£250,000
Total Predicted New Vehicle Turbo Market Size is 49 million Units				
Licence Royalty per unit	£10	£10	£10	£10
A- Penetration 0.5% of the predicted annual marketplace	£2,450,000	£2,450,000	£2,450,000	£2,450,000
B- Penetration 1% of the predicted annual marketplace	£4,900,000	£4,900,000	£4,900,000	£4,900,000
C- Penetration 2% of the predicted annual marketplace	£9,600,000	£9,600,000	£9,600,000	£9,600,000
D- Penetration 5% of the predicted annual marketplace	£24,500,000	£24,500,000	£24,500,000	£24,500,000
E- Penetration 10% of the predicted annual marketplace	£49,000,000	£49,000,000	£49,000,000	£49,000,000
Opex	£250,000	£250,000	£500,000	£500,000
AA- EBITDA	£2,450,000	£2,450,000	£2,200,000	£2,200,000
BB- EBITDA	£4,900,000	£4,900,000	£4,650,000	£4,650,000
CC- EBITDA	£9,600,000	£9,600,000	£9,350,000	£9,350,000
DD- EBITDA	£24,500,000	£24,500,000	£24,250,000	£24,250,000
EE- EBITDA	£49,000,000	£49,000,000	£48,750,000	£48,750,000

Schedule 2 – Device Design Drawings



Schedule 3 – Prototype Turbo with Pelton Wheel



Schedule 4 – Emissions Limits and Timeline

By 2021, phased in from 2020, the fleet average to be achieved by all new cars is **95 grams** of CO₂ per kilometre. This means a fuel consumption of around 4.1 l/100 km of petrol or 3.6 l/100 km of diesel.

The 2015 and 2021 targets represent reductions of 18% and 40% respectively compared with the 2007 fleet average of 158.7g/km.

Limit value curve

Emission limits are set **according to the mass of vehicle**, using a limit value curve. The curve is set in such a way that the targets set for new cars fleet average emissions are achieved. The limit value curve means that heavier cars are allowed higher emissions than lighter cars. Only the fleet average is regulated, so manufacturers are still able to make vehicles with emissions above the curve provided these are balanced by vehicles below the curve.

Phase-in of requirements

The target of 130g/km was **phased in** between 2012 and 2015. From 2015 onwards, all newly registered cars must comply with the limit value curve. A shorter phase-in period will apply to the target of 95g/km. **95%** of each manufacturer's new cars will have to comply with the limit value curve in **2020**, increasing to **100% in 2021**.

Penalty payments for excess emissions

If the average CO₂ emissions of a manufacturer's fleet exceed its limit value in any year from 2012, the manufacturer has to pay an **excess emissions premium** for each car registered. This premium amounts to:

€5 for the first g/km of exceedance

€15 for the second g/km

€25 for the third g/km

€95 for each subsequent g/km.

From 2019, the cost will be €95 from the first gram of exceedance onwards.

Eco-innovations

Innovative technologies can help cut emissions, but in some cases it is not possible to demonstrate the CO₂-reducing effects of a new technology during the test procedure used for vehicle type approval. To encourage eco-innovation, manufacturers can be granted emission credits equivalent to a maximum emissions saving of 7g/km per year for their fleet if they equip vehicles with innovative technologies, based on independently verified data. These eco-innovation credits will be maintained for the 2021 target.

Super credits

The cars Regulation gives manufacturers additional incentives to produce vehicles with extremely low emissions (below 50g/km).

Each low-emitting car is counted as

- 3.5 vehicles in 2012 and 2013
- in 2014
- in 2015
- 1 from 2016 to 2019.

Super-credits will also apply in the second stage of emission reductions, from 2020 to 2023.

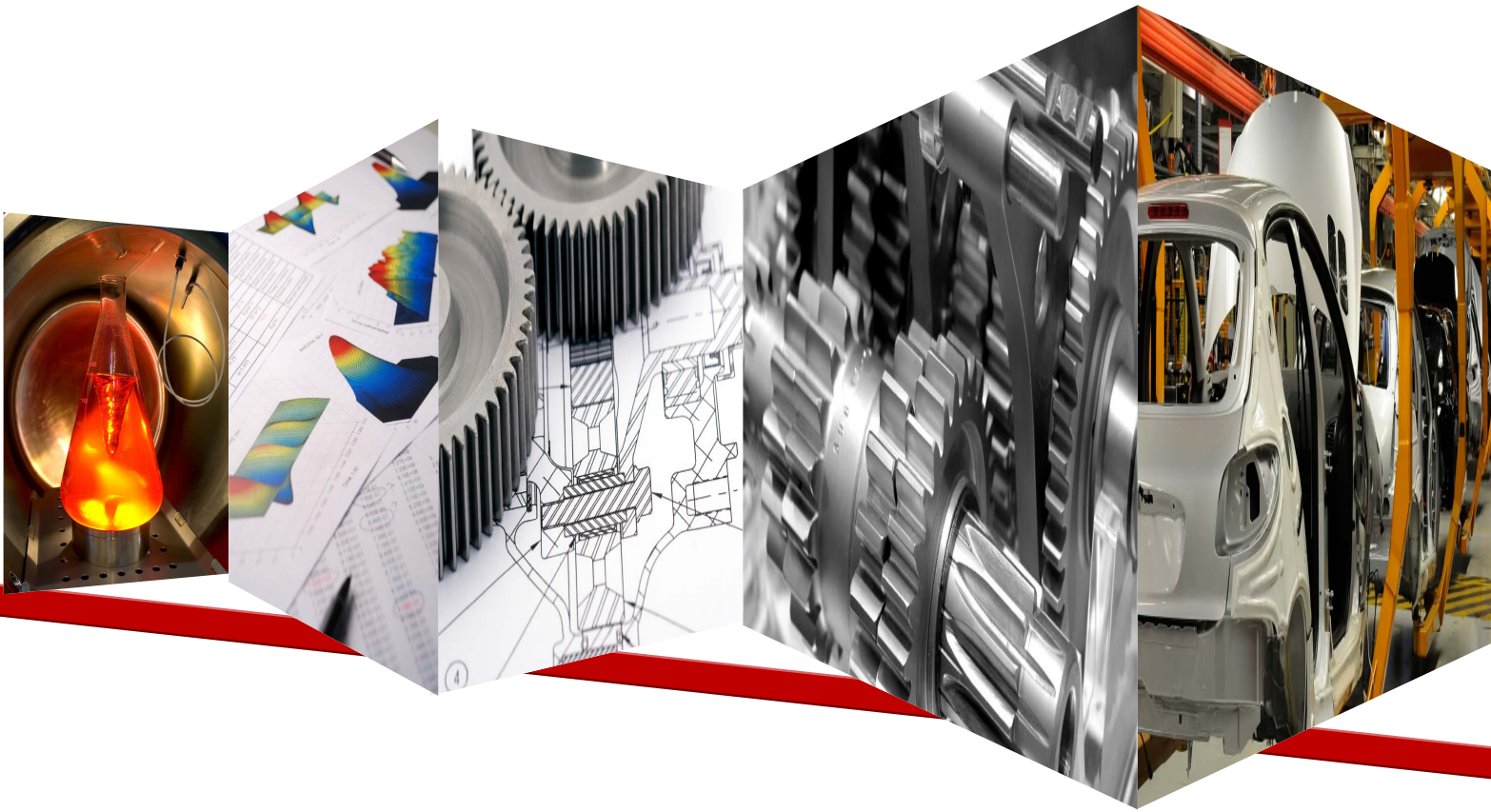
Each low-emitting car will be counted as:

- 2 vehicles in 2020
- 1.67 in 2021
- 1.33 in 2022
- 1 from 2023.

(Source http://ec.europa.eu/clima/policies/transport/vehicles/cars/index_en.htm)

Automotive Technology and Manufacturing Readiness Levels

*A guide to recognised stages of development
within the Automotive Industry*



Foreword



Good, clear communication firms the ground for exploring new ventures, common areas of interest and establishing new relationships. Within engineering sectors, communication is paramount to achieving high quality products and using resources most efficiently and effectively.

There is an ongoing need for greater cooperation, joint exploration of new designs and acquisition of evolutionary and revolutionary products in order to rebuild the strengths of the UK's Automotive Sector. This set of 'readiness' levels assists the sector by providing specific, identifiable stages of maturity, from early stages of research through to supply chain entry.

I hope you will join others in implementing this framework for technology development, using it as a basis for further planning and communication, and gaining further benefit from its use.

Professor Richard Parry-Jones CBE
Co-Chairman of the Automotive Council

Acknowledgements

The authors of these readiness levels Roy Williamson (LowCVP) and Jon Beasley (GKN) wish to thank and acknowledge the support contributed by the UK automotive sector in developing this guide under the auspices of the Automotive Council. These levels draw upon established practices for defining technology development and acquisition in use within the defence and aerospace supply chains.

This guide has been created by the Low Carbon Vehicle Partnership in association with the Automotive Council.
January 2011

Introduction to Technology and Manufacturing Readiness Levels (TRLs and MRLs)

A recurring issue to developers and adopters of new technologies is how to successfully communicate their accomplished or expected stages of technology development and readiness for manufacture. This set of Automotive TRLs and MRLs aims to help facilitate this dialogue and in doing so help with technology commercialisation, development work with new partners, planning supplier engagement and bringing new capabilities to market, through common understanding. Readiness levels provide common terms to define technology from concept to commercial production and through to disposal, and have a proven effectiveness from the aerospace and defence sectors. Independently, readiness levels can also assist with self-assessment, monitoring progress and planning goals and actions.

Benefits

- Emergent supply chain companies have a framework through which they can better understand the engagement needs of Tier1s/VMs.
- VMs, Tier1s and funding agencies are presented with clear definitions for present and targeting levels of development status.
- A framework can be used to provide clearer direction regarding engagement of the most appropriate public sector support.
- Angels/VC investor interest can be strategically aligned to product requirements.
- Self assessment provides guidance on next steps (trials, certification etc) relevant to Level and signposts sources of support.
- Sector-wide assessments and initiatives have a common framework to build upon.

These are a few of the benefits that are realised through common understanding.

Application to Integrated Assemblies and Roadmaps

When components are brought together and integrated, their individual TRL and MRL contribute to the readiness of the overall assembly. Integrated systems may contain components with different levels of readiness, influencing the status of the assembly overall. The use of readiness levels in such cases can highlight areas for focus and prioritisation in order to make best progress.

When considered with a timeframe in mind, readiness levels help depict the development path or time to implement next generation technologies or derivatives with respect to established products, similar to technology roadmaps and highlighting strengths and weaknesses in proposed or emerging systems.

Readiness levels also offer the ability to assess complete systems at a high level, the electrification of transport for example, and to focus in on contributing components, such as battery technologies or infrastructure integration.

Relationship between Technology Readiness and Manufacturing Readiness Level

The table which follows details ten stages of maturity for a product to:

- deliver its function (Technology Readiness)
- be produced (Manufacturing Readiness)

These levels are staggered in the table since advancing technological capability logically progresses ahead of manufacture. For each Technology Readiness Level the corresponding Manufacturing Readiness Level is that which is usual. It should be noted however that some technologies can deviate from these levels.

Automotive Technology and Manufacturing Readiness Levels

TRL	Technology Readiness	MRL	Manufacturing Readiness
1	<ul style="list-style-type: none"> Basic Principles have been observed and reported. Scientific research undertaken. Scientific research is beginning to be translated into applied research and development. Paper studies and scientific experiments have taken place. Performance has been predicted. 		
2	<ul style="list-style-type: none"> Speculative applications have been identified. Exploration into key principles is ongoing. Application specific simulations or experiments have been undertaken. Performance predictions have been refined. 		<ul style="list-style-type: none"> A high level assessment of manufacturing opportunities has been made.
3	<ul style="list-style-type: none"> Analytical and experimental assessments have identified critical functionality and/or characteristics. Analytical and laboratory studies have physically validated predictions of separate elements of the technology or components that are not yet integrated or representative. Performance investigation using analytical experimentation and/or simulations is underway. 	1	<ul style="list-style-type: none"> Basic Manufacturing Implications have been identified. Materials for manufacturing have been characterised and assessed.
4	<ul style="list-style-type: none"> The technology component and/or basic subsystem have been validated in the laboratory or test house environment. The basic concept has been observed in other industry sectors (e.g. Space, Aerospace). Requirements and interactions with relevant vehicle systems have been determined. 	2	<ul style="list-style-type: none"> Manufacturing concepts and feasibility have been determined and processes have been identified. Producibility assessments are underway and include advanced design for manufacturing considerations.
5	<ul style="list-style-type: none"> The technology component and/or basic subsystem have been validated in relevant environment, potentially through a mule or adapted current production vehicle. Basic technological components are integrated with reasonably realistic supporting elements so that the technology can be tested with equipment that can simulate and validate all system specifications within a laboratory, test house or test track setting with integrated components Design rules have been established. Performance results demonstrate the viability of the technology and confidence to select it for new vehicle programme consideration. 	3	<ul style="list-style-type: none"> A manufacturing proof-of-concept has been developed Analytical or laboratory experiments validate paper studies. Experimental hardware or processes have been created, but are not yet integrated or representative. Materials and/or processes have been characterised for manufacturability and availability. Initial manufacturing cost projections have been made. Supply chain requirements have been determined.

6	<ul style="list-style-type: none"> • A model or prototype of the technology system or subsystem has been demonstrated as part of a vehicle that can simulate and validate all system specifications within a test house, test track or similar operational environment. • Performance results validate the technology's viability for a specific vehicle class. 	4	<ul style="list-style-type: none"> • Capability exists to produce the technology in a laboratory or prototype environment. • Series production requirements, such as in manufacturing technology development, have been identified. • Processes to ensure manufacturability, producibility and quality are in place and are sufficient to produce demonstrators. • Manufacturing risks have been identified for prototype build. • Cost drivers have been confirmed. • Design concepts have been optimised for production. • APQP processes have been scoped and are initiated.
7	<ul style="list-style-type: none"> • Multiple prototypes have been demonstrated in an operational, on-vehicle environment. • The technology performs as required. • Limit testing and ultimate performance characteristics are now determined. • The technology is suitable to be incorporated into specific vehicle platform development programmes. 	5	<ul style="list-style-type: none"> • Capability exists to produce prototype components in a production relevant environment. • Critical technologies and components have been identified. • Prototype materials, tooling and test equipment, as well as personnel skills have been demonstrated with components in a production relevant environment. • FMEA and DFMA have been initiated.
8	<ul style="list-style-type: none"> • Test and demonstration phases have been completed to customer's satisfaction. • The technology has been proven to work in its final form and under expected conditions. • Performance has been validated, and confirmed. 	6	<ul style="list-style-type: none"> • Capability exists to produce integrated system or subsystem in a production relevant environment. • The majority of manufacturing processes have been defined and characterised. • Preliminary design of critical components has been completed. • Prototype materials, tooling and test equipment, as well as personnel skills have been demonstrated on subsystems/ systems in a production relevant environment. • Detailed cost analyses include design trades. • Cost targets are allocated and approved as viable. • Producibility considerations are shaping system development plans. • Long lead and key supply chain elements have been identified.
9	<ul style="list-style-type: none"> • The actual technology system has been qualified through operational experience. • The technology has been applied in its final form and under real-world conditions. • Real-world performance of the technology is a success. • The vehicle or product has been launched into the market place. • Scaled up/down technology is in development for other classes of vehicle. 	7	<ul style="list-style-type: none"> • Capability exists to produce systems, subsystems or components in a production representative environment. • Material specifications are approved. • Materials are available to meet planned pilot line build schedule. • Pilot line capability has been demonstrated including run at rate capability. • Unit cost reduction efforts are underway. • Supply chain and supplier Quality Assurances have been assessed. • Long lead procurement plans are in place. • Production tooling and test equipment design & development has been initiated • FMEA and DFMA have been completed.

		8	<ul style="list-style-type: none"> Initial production is underway Manufacturing and quality processes and procedures have been proven in production environment. An early supply chain is established and stable. Manufacturing processes have been validated.
		9	<ul style="list-style-type: none"> Full/volume rate production capability has been demonstrated. Major system design features are stable and proven in test and evaluation. Materials are available to meet planned rate production schedules. Manufacturing processes and procedures are established and controlled to three-sigma or some other appropriate quality level to meet design characteristic tolerances in a low rate production environment. Manufacturing control processes are validated. Actual cost model has been developed for full rate production.
10	<ul style="list-style-type: none"> The technology is successfully in service in multiple application forms, vehicle platforms and geographic regions. In-service and life-time warranty data is available, confirming actual market life, time performance and reliability 	10	<ul style="list-style-type: none"> Full Rate Production is demonstrated Lean production practices are in place and continuous process improvements are on-going. Engineering/design changes are limited to quality and cost improvements. System, components or other items are in rate production and meet all engineering, performance, quality and reliability requirements. All materials, manufacturing processes and procedures, inspection and test equipment are in production and controlled to six-sigma or some other appropriate quality level. Unit costs are at target levels and are applicable to multiple markets. The manufacturing capability is globally deployable.

Examples

Below are two examples of levels applied to automotive technologies.

Composite Structures for mass market automotive applications

TRL	Technology Readiness	MRL	Manufacturing Readiness
8	<ul style="list-style-type: none"> • Test and demonstration phases have been completed to customer's satisfaction. • The technology has been proven to work in its final form and under expected conditions. • Performance has been validated, and confirmed. 	4	<ul style="list-style-type: none"> • Capability exists to produce the technology in a laboratory or prototype environment. • Series production requirements, such as in manufacturing technology development, have been identified. • Processes to ensure manufacturability, producibility and quality are in place and are sufficient to produce demonstrators. • Manufacturing risks have been identified for prototype build. • Cost drivers have been confirmed. • Design concepts have been optimised for production. • APQP processes have been scoped and are initiated.

ABS for multiple vehicle class, automotive applications

TRL	Technology Readiness	MRL	Manufacturing Readiness
10	<ul style="list-style-type: none"> • The technology is successfully in service in multiple application forms, vehicle platforms and geographic regions. In-service and life-time warranty data is available, confirming actual market life, time performance and reliability 	10	<ul style="list-style-type: none"> • Full Rate Production is demonstrated • Lean production practices are in place and continuous process improvements are on-going. • Engineering/design changes are limited to quality and cost improvements. • System, components or other items are in rate production and meet all engineering, performance, quality and reliability requirements. • All materials, manufacturing processes and procedures, inspection and test equipment are in production and controlled to six-sigma or some other appropriate quality level. • Unit costs are at target levels and are applicable to multiple markets. • The manufacturing capability is globally deployable.